Keep Your Card in This Pocket

Books will be issued only on presentation of proper library cards.

Unless labeled otherwise, books may be retained for two weeks. Borrowers finding books marked, defaced or mutilated are expected to report same at library desk; otherwise the last borrower will be held responsible for all imperfections discovered.

The card holder is responsible for all books drawn on this card.

Penalty for over-due books 2c a day plus cost of notices.

Lost cards and change of residence must be reported promptly.

THE SCHOOL DISTRICT OF KANSAS CITY, MISSOURI

Public Library
Kansas City, Mo.

TENSION ENVELOPE CORP.

FUNDAMENTALS

of

SINGING

&

SPEAKING

by

Teodosio Longo

S. F. VANNI
Publishers and Booksellers
30 WEST 12TH STREET
NEW YORK 11, N. Y.

TABLE OF CONTENTS

Foreword 7

Preface 9

A critical survey 11

Introduction 11

The difference between vowel and sound 15

Teaching 18

Breath 22

Vocal cords 29

Sound-Tone 33

The Attack 39

Color 50

Vowels 51

Registers 71

Middle-register, 78

Central-register, 84

Low-register, 88

High-register, 93

Very high-register, 97

Three Musts & Three Don'ts 98

Consonants 99

The hum 109

Conclusion 112

FOREWORD

This is the first book ever written which explains the mechanics of the voice.

This manual exposes a natural fact, the knowledge of which should have been a foregone conclusion long since. We all know that every now and then a singer does come along who — helped by nature alone and certainly not by any of the existing books or any of the alleged methods, hence knowing neither how nor why — uses his voice correctly.

SINGING *and* SPEAKING *are based on the same fundamental principle. In fact a student, before attempting to develop his voice (vocal cords) should first be sure that his speech is acoustically correct.*

That is why, therefore, we recommend this book not only to those who want to become singers and to the many who have to use their voice extensively, like public speakers, lecturers, actors, radio announcers etc., but also to those who have defects in pronunciation as, more often than not, such defects are caused by the wrong use, or the lack of use, of those very facial muscles *which must be trained, or educated and developed so as to obtain the correct formation of the vocal instrument.*

PREFACE

What is said in this book must not be considered as a different method. Neither does it constitute an invention because there is nothing new in correct singing. It is, instead, a "systematic guide" to be followed in the course of study of an art which, in my opinion, is more misunderstood than decadent. This is true in spite of the fact that too many nowadays deferentially refer to "Bel Canto" as one of the miracles of the past.

To the readers who speak a language other than Italian a few enlightening words are necessary in order to better understand what may seem very new only because it has never been told before.

For the first time the *vocal apparatus* (physiological) is considered and analyzed as a *vocal instrument* (musically or artistically). This distinction is of paramount importance if the true significance of words like *"formation, hollow-pharyngeal-neuter-sounds"* is to be properly grasped.

The term *sound-tone* is used to render recognizable or identifiable *the sound which is correctly produced and conveyed.* For clarity's sake and for the respect due to music as an art, a "throaty" or "buzzy" noise cannot be called a sound or, much less a tone; rate, amplitude and complexity of vibrations notwithstanding.

Another peculiarity of the book, it will be found, is the elimination of the common and misleading reference to phonetics. The reason for such an elimination is simply this: "phonetics is the science of the pronunciation of languages." It is concerned with the mechanism by which speech-sounds are formed. Singing,

instead, is music or art and *musical-speech must necessarily be subordinated to the sound-tone.*

On the other hand, the confusion would not be avoided by following the usual way. For example: if we say *a* articulated like the *a* in father, the whole and very purpose of the book will be lost. In as much as the *a* in the word father is acoustically defective, a new and entirely different conception is required if the "round, beautiful, facile and sonorous *a*" fundamental in the art of singing, is to be produced.

I do not hesitate to say that *the formation of the vocal instrument* should be studied in the years which precede puberty. Good results, however, can and will be attained by those who have passed that age, if they have a vocation for this art and if they are also willing to devote to it whatever time it will require, as is always the case with anything that has to be mastered. But old opinions and conclusions must be abandoned and completely new ones arrived at, instead.

Teodosio Longo

A CRITICAL SURVEY

INTRODUCTION

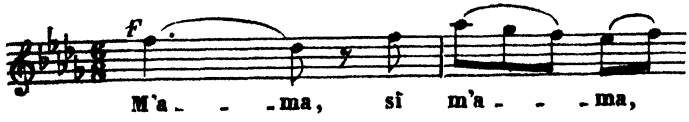
The diverse aspects of the art of singing, treated by the many books on the subject, all claiming to be more or less exhaustive studies, would lead one to assume that whatever there was to say has been said and that the matter has been conclusively settled once and forever.

But, what is the contents of these books? . . . .Some, fortunately the briefest, give us information about "style". They reproduce phrases and cadenzas used in former times, when exhibitionism was paramount and the composer was at the mercy of the often questionable ability and experience of the performer. In others, the author feels duty bound to call "Art of singing" or "Bel Canto" all that relates to the emission of vocal sounds. Continuing the review, it is not difficult to trace the writer who believes and seeks to prove that singers are made only scientifically. Finally, we come to those who, in order to complicate matters still further, include everything under the all-embracing title of "Art-Science". These gentlemen, employing a nomenclature comprehensible only to medical students, with documents on hand that prove nothing, equipped with new vibration-reproducing instruments and with an endless succession of geometrical figures purporting to be demonstrative, bring forth a book of two, three and even four

hundred pages. Its contents may prove valuable to anyone except to those whom it was primarily designed to benefit, that is, those persons, very young as a rule, who, conscious of possessing a fairly good voice, (but not the natural *formation* for the production and conveyance of *true sounds*) earnestly endeavor to sing well but, alas, do not succeed because of the lack of correct information regarding the fundamentals of the art.

That the principal aim of the author is *to teach* is revealed by the fact that at the end of these books one almost never fails to find the usual exercises intended, naturally, for the development of the voice. And it is precisely in these lessons that the grossest error is committed and the most blatant incompetence evinced. Consonants and syllables are used while vowels are completely disregarded. Even common sense alone should tell one that consonants can produce only internal vibrations. The singer who strives for a sonorous consonant will obtain, as a result of his effort, a rise in his blood pressure with a consequent waste of energy that beside being futile may also cause injury to the system.

Let us take an ordinary example. When in the Aria "Una furtiva Lagrima", in Donizetti's "Elisir d'Amore", the tenor sings:



it is clear that the *F* must be held with the vowel *a* and not with the *m*, since to pronounce the *m* the lips must be closed and the *buzz*, thus produced, by those employing the wrong *formation*, would even fall short of a *hum*, which, by the way, is a musical effect and must be studied separately.

In one of the above mentioned scientific dissertations, I was reading, some time ago, that the author would consider his ideal

realized if, through some mechanical device, probably of his own invention, he could record a series of model scales sung by Enrico Caruso, to be used as an example of perfection in the art of singing. Now, then, such an idea is proof enough that the author does not possess a musical ear capable of distinguishing *the true from the false sounds, the guttural from the free sound* and accepts Caruso without understanding him either scientifically or musically. He has not understood him scientifically because he does not admit the *exception* and he has not understood him musically because: 1) special requisites and qualities are necessary for a perfect imitation; 2) the intelligent student possessing his own individual musicality has no need to imitate anyone; 3) and, what is most important, the singer who tries to imitate, will end by irreparably ruining his own vocal organ.

These intellectuals, even though they be luminaries of science, are not artists. They seek a theoretical solution, and only a theoretical solution to a problem which, because of its very nature, should be treated from the practical point of view. They do not realize that *the singer cannot and must not theorize on the refraction of sounds during the period of study* for the very simple reason that, in order to appraise it, he would have to feel it and hear it falsely. Through one of those physiological phenomena. the discussion of which is no concern of the musician, he assumes the role of the listener and strives to sing so as to please himself, losing sight of the most important factor, that is, that the voice must be judged by the actual listener and not by the one who does the singing.

In fact, to better hear his own voice, he forms a resonating chamber with the posterior part of the tongue and the soft palate as its walls. The sounds resulting will always be false and the more defective in pitch as they are more forced and absolutely incompatible with the *formation* to be used for the *sonorous*

vowels which, since they must be *hollow,* comparable to the *open strings* of bow instruments, must, necessarily, be pure, free and fluent. If a string instrument, in general, produces a dull, woody, nasal sound, the defect will be sought within the instrument itself, not in the strings. Consequently, *the vocal organ must be treated like any other instrument.*

It is unfortunately true that the psychological factor, in the process of emission, cannot be excluded. But, if *the acoustical phenomenon* is borne in mind from the outset and if an effort is made to obtain *hollow* sounds, no matter if they are weak (which is the effect free sounds have on the unexperienced singer) as long as their pitch is good, if not perfect, the right course will have been traced. It is to be noted here, that the only person really qualified to teach voice is he who, beside being a good musician, is also endowed with an ear especially sensitive to vocal sounds.

The remainder of the study procedure will be simple because it involves development, which is merely a question of earnest and intensive application.

In contrast to the vast number of theorists, very few are those who, in addition to good vocal cords, possess the correct natural formation for the emission of *sound-tone* and the musicality essential for the making of a good singer. They are not only few, but rare, as rare indeed as orchestra conductors possessing the *rhythm* without which an exact, true interpretation of music is impossible. The lack of a principle on which a system could be based has certainly not been conducive to an improvement of the situation. In fact, it is well known that there may be found a surprisingly substantial number of students of singing who possess a voice of splendid *timbre,* who are endowed with a musical sense of the first order, and who could easily complete the *vocal instrument,* if they could find someone, somewhere, who would

tell them how that formation which makes quality possible, is to be obtained.

In this treatise, instead of insisting on definitions, I shall endeavour to explain in the simplest possible manner (because to me it does seem elementary) which is the one and only *formation that allows the passage of sound and how this formation can be achieved by means of constant and solely physical exercise.*

DIFFERENCE BETWEEN VOWEL AND SOUND

The *vocalizzo* or vocalization, like other sayings or maxims of the old singers has been handed down to us from the days of *Bel Canto*. It is now well known even by many who have never studied singing. It means: use of the vowels in musical exercises such as scales, arpeggios, skips, long notes, the staccato, legato etc. Nevertheless, the presupposition on which it is based, at least nowadays, is entirely erroneous; and nothing could be more simple to demonstrate. The vowels are taught in elementary schools by teachers who are only concerned with the vernacular. Furthermore, extraordinary qualifications are involved in the instruction of sound-production and there is justification in supposing that, with the exception of perhaps a very few, the teachers of primary schools would not possess those qualifications.

More important still is the fact that there are languages like, for example, English that do not have *true and proper vowels*, so much so, that phonetically they are or can be represented by diphthongs (two color gradations instead of one). Therefore, the confusion between *vowel* and *sound* is fundamental and unavoidable.

It is an entirely different matter when we come to sound. Fundamentally the factors to be taken into consideration are these:

1st) If we accept the results of the vast study made on the subject of acoustics the conclusion must be drawn that *"the scientific explanation of sound makes imperative its dissociation from the common vowel."* 2nd) In the study of voice the *producing apparatus* (student) and the *receiving organ* (teacher or general listener) must be treated with equanimous consideration. The latter is quite a problem and only its great importance is brought to the careful attention of the reader, as the scientific aspects are here purposely avoided. There are many who, even though they know nothing about music, instinctively grimace at the first false sound of the singer. Whereas we find orchestra-conductors who remain impassive when the voices of a mixed-chorus produce an atrociously-sounding combination. This state of affairs can be also encountered, rather frequently, in opera duets, trios, quartets etc., when the ensemble's effect is neglected and the desire of each of the participants for personal show becomes evident.

In many cases the distance between the singer and the listener is of considerable importance. I have known some teachers who were entirely satisfied with their students' singing as long as they were in the same room with them, but who could find faults in their voice if they listened to them from the outside, at the distance of a few yards, from across a hall or a larger space.

And now it is necessary to go back a long way, to the beginning of the 17th Century, when at the Papal School in Roma youths were chosen, examined and subjected to the serious and assiduous study required for the art of singing at that time. Angelo Bontempi tells us that "students would gather in the classroom and dedicate the first hour of study to the quality of tone, the second to the trill, the third to technique (rapid passages) and the fourth and last hour to the cultivation of taste and expression. All this in the presence of a professor who made sure that the pupils sang before

a looking glass, so as to learn to avoid grimaces and other facial distortions." (*)

Composers like Carissimi, A. Scarlatti, Lotti, Porpora and the singers of that era, namely, Bernacchi, Farinelli, Caffarelli and others left no rules that could serve as a guide to future students of singing. Artists of similar fame, in the following century, like Malibran, Grisi, Tamburini, La Blache etc. now and then coined some very beautiful phrases which, at their best, are only vague definitions and offer absolutely no tangible advice concerning the emission of sounds. By this time Opera had crossed the bounderies of Italy and interest in singing became European. Thence the innumerable series of treatises, opuses etc. that I referred to in the beginning.

If an international, professional chorus were to be formed the dissimilar or heterogeneous *quality* of the *sound*, among the various national groups, could be noted even by the most unmusical ear. Those who speak a language of pure vowels (of one single and prolongable color) sing more naturally and succeed in producing sounds that are less constrained — consequently more in pitch and with a silvery quality, especially in the high notes — than those who have the habit of using the hind part of the tongue in the articulation of vowels and consonants. This explains why the "Art of singing", even though it has ever been the longing and despair of other nations, has remained plainly and primarily Italian.

It cannot be disputed that Wagner hastened the decline of that ultra-refined form of art. But it is not correct to assume that his operas are impossible to good singers. Giuseppe Borgatti, whom I knew well, was, both musically and artistically a magnificent Siegfried and yet his voice was not dramatic. It is very true that the singers themselves, sometimes half-trained, who replaced the

(*) Bontempi (*recte* Angelini), 1624-1705 composer and pedagogue.

old masters, have come to the easy and fallacious conclusion that, in order not to be drowned out by the orchestral mass, a voice so powerful, as to be equal in sonority to the horns and trombones would be required. Since this idea has led to a continuous increase in volume with a consequent complete disregard of quality one can, today, safely state without fear of exaggeration, that we are made to listen, alas all too often, to certain *oblique sounds* which have lost all human semblance. But, it would be unjust to accuse only the singers. There are other factors. Firstly, the responsibility of the orchestra-conductor cannot be overlooked. Secondly the lack of a "systematic guide" to be followed in the study for the cultivation of the voice, cannot be disregarded. Thirdly, the composers of modern music, the impresarios etc..... But a full discussion of that subject would take too much space and would transcend the scope of this book, as much as it would the argumentation whether Opera, as a form of entertainment, has, more or less, had its day.

However, the fact which remains and must be stated is that, since *dramatic voices* have become fashionable, the confusion between singing and yelling is such that the responsibility of serious study (and teaching) has been completely lost. The situation is most absurd. The repertoire is taught and learned first, only to discover, when it is already too late that singing has not been studied at all.

At any rate, music will always offer new possibilities and the use of the voice, as a solo instrument, if treated with genius and with skill, will enrich, nay, complete its great resources.

TEACHING

It is not paradoxical to declare a mistake the belief that only singers can instruct the young. To have sung in Opera or on the Concert stage does not automatically give one the right to teach.

Much more, very much more indeed, than the usual ability to sing a few arias and romances is required in order to thoroughly understand what voice really is.

Very likely that erroneous conviction results from the lack of a *system* which leaves no other alternative but sheer, parrot-like imitation. But should imitation alone be sufficient, it would be very simple to establish, once and for all, that sopranos should study with sopranos, tenors with tenors etc. What happens instead? That a young lady with a pleasant high-soprano voice has finally decided to study with..... a basso; or that a future baritone is taking lessons from an ex-soprano who hasn't been singing for the past ten or fifteen years. And so on.....

If the comparison between certain vocal sounds and the open strings of bow-instrument is agreed to, one must not neglect to consider that whereas the purchase of a violin and a bow is sufficient to start practising, in singing the instrument must be formed with the material which the student himself possesses. *To evaluate the merits of that material and to convert it into a vocal instrument is the truly grave responsibility of the maestro, teacher or instructor, as one may wish to call him.*

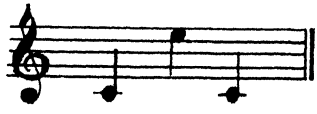
Besides, the procedure of study is completely different. While, for example, the piano pupil learns something new each time, with the student of singing it is always a question of correcting defects, sometimes natural, but more often due to superficialities, to an ignorance of music or to faulty study. In the latter case, the work of demolition and reconstruction is enormous, since it is essentially psychological.

Everyone knows that singers dedicate themselves to teaching either because their voice no longer meets the demands of the profession, or, much worse, because, although yet young, they have lost all hope of success. Naturally, this is the rule not the exception which may very likely exist, and it is my hope that it does.

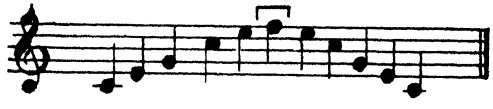
The true teacher or instructor MUST show how *the correct opening of the mouth IS the only determining factor in the quality of sounds.*

He should be able to produce false as well as correct sounds, so as to imitate the pupil when he misses and, in so doing, give him a clear idea of what actually happens and what should, instead, take place.

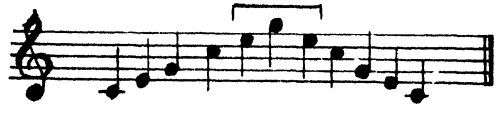
He should, at least, be able to produce correctly a tenth:



an appoggiatura:



and also:



in the basic tonalities (keys) for the three voices (see registers). Timbre in this case is of no importance.

It also seems to me that a maestro, to be worthy of the name, should be a good musician, since it is often necessary to improvise, not one but a series of exercises, according to the physiological possibilities and intuitive capacity of the student. He must, in short, possess what is commonly called *talent* (an instinct for the production of correct sounds), to which must be added a very fine

ear, capable of recognizing and localizing all vocal sounds. As it can be seen, this is not the same thing as singing, be it even fairly good singing.

To conclude, I wish to point out that ever since 1905, at the Conservatory of Paris, vocal teachers are no longer selected exclusively from ex-opera singers. The reason for such a reform is obvious.

Definition of technical names and their inter-dependence

Phonation: Act or process of uttering voice, or vocal sounds.

Mid-Central: The step of the scale (or sound therein) which is the highest of the central register and the lowest of the middle register. The same applies to "low-central" and "mid-high' notes.

Hollow-Pharyngeal-Neuter-Sound: The "musical phonation" or the vocal "sound-tone" which is hollow because the vibrations pass freely from the larynx to the nasopharynx; it is pharyngeal because the sound-tone starts not in the larynx but in the naso-pharynx, and it is neuter because no vowel is articulated.

Formation: The correct shape of the resonating chamber of the vocal instrument which is obtained by the use of the proper facial muscles in opening the mouth.

All the exercises contained in this book are written for high voice — Soprano and Tenor — for which the mid-central note is the C, on the third space of the treble clef, which however, for the tenor results, in effect, one octave below. For the other voices it will be necessary to transpose them all: to *A*, for mezzo-soprano and baritone, to *F*, for contralto and basso (see registers).

Harmonically speaking the mid-central is, therefore, the tonic, or keynote, of the vocal instrument one octave above.

To have a better general idea of the whole subject, as exposed and analyzed in this treatise it is here suggested that the entire book be read first, after which the systematic study should be started from chapter n. 1 — Breath.

BREATH

Correct respiration should not be taught by..... singing teachers but by physicians or "physical-exercise-specialists" in public schools. Such a day, however, may still be far off and, meanwhile, we must look at the facts.

The lack of conclusion in the long but superficial discussions made on the subject of voice production is due to two fundamental errors. One, as already mentioned, is the acoustical, or the mistake of believing that the sound actually starts at the vocal cords. The other is the functional, or the mistake of believing that a special type of breathing is necessary to produce the sound. Nothing could be more false and misleading than this last concept.

The Sound-Tone cannot be obtained if respiration is not physiologically normal.

The fact that man is able to keep himself alive, without apparent harm, no matter which way he breathes has, undoubtedly, had a lot to do with the nonsense put in circulation by many of the so-called voice teachers. On the other hand it must be said that it is not for the singer to decide if the internal intercostal, for example, are muscles of inspiration or expiration; something, this, even the physiologists are not agreed on as yet. The artist, who is interested in results, finds that:

The Sound-Tone cannot be produced when inspiration is performed through the mouth exclusively because the vibra-

dotto — vibration's duct — or the pharyngeal part of the instrument *is more or less upset when "gasping" for air.* It can easily be found, in addition, that when respiration is performed through the mouth exclusively the function of the abdominal muscles is reversed; that is, they contract in inspiration and relax in expiration. The air is thus squeezed at the center of the body and the diaphragm cannot function according to its anatomical structure. It is logical to assume that respiration thus performed cannot be complete, consequently it must not be considered normal.

Even in cases where correct natural formation is present, careless immission of air through the mouth causes imperfection of the sound: the *tremolo* (not to be confused with the oscillation resulting from weakened vocal cords) is one; shaking of the body is another; extreme hardness or tenseness of both the body and the sound is still another. Undesirable as they are, they may be considered minor defects if compared with the *alteration* of *timbre* and that typical *wanting in pitch* which infallibly result from *wrong formation.*

To have a clearer idea of the mechanics of singing, breathing should be classified and subdivided as follows:

Inspiration: can be either *slow* or *rapid.*

Expiration: can be simply *physiological* or *acoustic* (physiologico-physic).

Slow inspiration: Intake of air through the nose exclusively. The inspiratory wave starts at the umbilicus and spreads to the pubis. Only then does it spread (upwards) to the costal margins. The inspiratory wave must not reach the upper part of the chest cage; it must be kept low and far from the pharyngic region in order to avoid an uncomfortable sense of crowdedness in the throat. Inspiration must be deep but light.

Rapid Inspiration: intake of air through nose and mouth simultaneously.

Very probably the *key* of correct singing is the *simultaneous respiration.*

Simultaneous immission implies *correct formation;* consequently, if practised intelligently and for a long time it will unveil the mystery of *Bel Canto.*

Physiological expiration: can be either *passive,* that is to say, by relaxing all the muscles that have participated in inspiration; or it can be *forced,* allowing the breath to pass through the pursed lips as is done when blowing tobacco smoke, until the abdominal muscles press the viscera, thereby relieving the diaphragm.

Acoustic expiration: always slow and controlled, can be:

Palatal: from the lowest up to the mid-central note.

Naso-pharyngeal: from the mid-central up to the highest note, without articulation of words but with the Bell (mouth) open.

Nasopharyngeo-palatal: same as above, but with the help of the mandible, the facial muscles and the anterior portion of the tongue for the articulation of words. (see Table of registered sounds).

The nose is the entrance to the highways of respiration but: the lips, the mandible and the tongue are remarkably connected with the respiratory "tree".

The enormous importance of keeping the tongue within the teeth cannot be exaggerated. Only through keen observation and long experience one will come to realize that *the wrong position of the root of the tongue is capable of altering the function of the whole respiratory system.*

The antagonistic effect of the nose and the mouth upon the

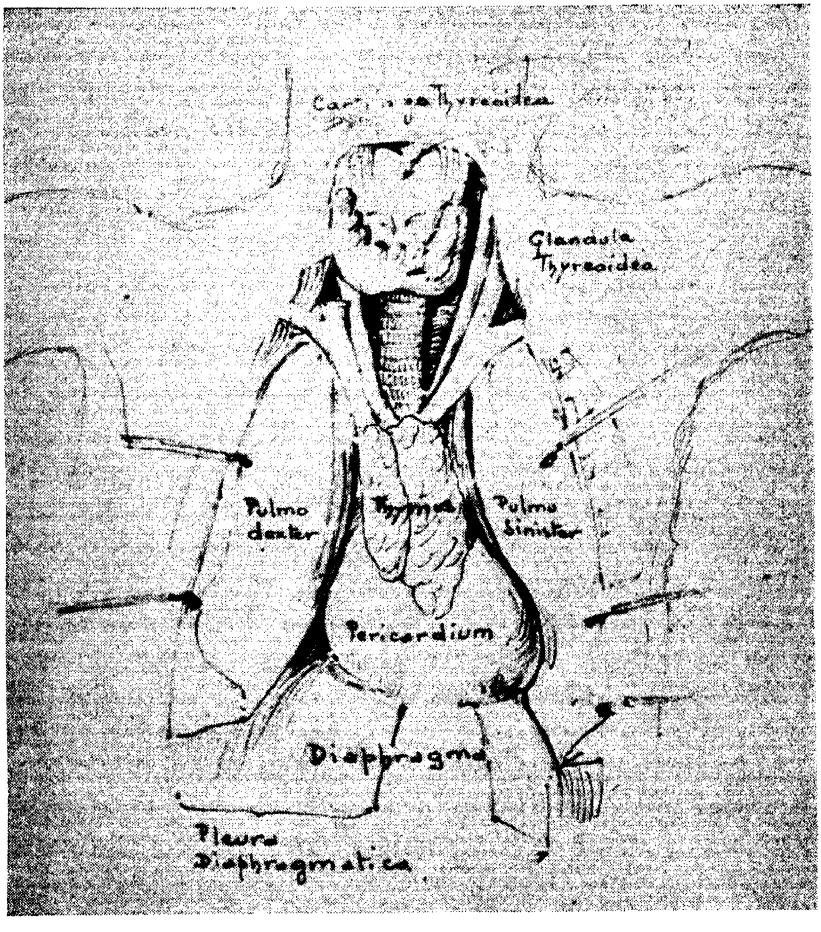


Fig. 1 *Diaphrägm*

The vertical direction and the point of destination of the air column are established by the manner in which the intake is done.

action of the abdominal muscles is more than ever evident when simultaneous immission is performed fast. *Rapid inspiration,* so necessary in actual singing, allows more air through the larger opening (the mouth) hence, the pressing of the abdominal muscles upon the viscera essential, in turn, for the support of the diaphragm. It is important to note that in simultaneous intake the air does not slide on the tongue (shallow breathing); it glides tightly close to the hard palate; from this, the name "nasopharyngeo-palatal."

In the study of Sound-Tone production, however, correct breathing should, at first, be considered a consequent. The correct intake of air becomes a premise only after all the possibilities for doing it have been thoroughly investigated.

If it is true, and we cannot, in reason, have any doubt, that "*the respiratory tree is a derivative of the cephalic intestin*" correct or incorrect, respiration mostly depends from the right, or wrong formation (structure) of the skull (fig. 10). The mandible, precisely because it is movable, may very well enhance that formation but it may also aggravate "deformation". Anyone who is willing to try may discover that the vertical direction and the point or destination of the air column are established by the manner in which the intake is done; not by the diaphragm! To speak of this muscle — the diaphragm — without speaking, first, of the nose and the mouth is exactly like theorizing on the "control of the breath" without having achieved, first, the "correct and constant opening of the oral passage" or, in fact, like studying the repertoire without having studied, first, the musical-phonation, or "Sound-Tone."

In reality, the singer should strive for the perfectioning of the whole process of respiration.

Respiration starts with immission.

Immission starts at the nostrils and the lips.

Nostrils and lips are the external limits of the resonating *tube* or *chamber* of the vocal instrument.

Here, the main question arises: Is this *resonating chamber* "formed" right, or is it of an irregular shape? And if not formed right: are the defects superficial or fundamental?[1]

The answer to these questions is what will, or will not, justify the effort ahead, because *correct inspiration is the foundation of the study for correct singing.*

By virtue of the interdependence of all the factors — voice, musicality, formation and breath — we can even say that the correct immission stabilizes a priori the rate, amplitude and complexity of vibrations, or, respectively, the pitch, volume and timbre of the voice. Moreover, the instructor should be able to recognize the correct intake of air by the sound which will result, lest cause and effect are to be hopelessly confused.

Slow inspiration should be practised: when standing up; when walking; when sitting on a chair but with the trunk erect, and also when lying down in a dorsal recumbent position. It should be tried extremely slowly so as to have almost the sensation of individualizing all the muscles that participate.

Between inspiration and expiration there must be a stop, or gap, (of two or three seconds, or more) because the bell of the instrument — the mouth — must be opened easily, correctly and nonchalantly, while the respiratory apparatus remains absolutely still (Attack).

Beginners, as well as those who have not studied properly should remember that the first rule must be: *do not gasp immediately before the attack.*

[1] In a 2nd volume it is my hope to give, among many other informations unavailable to the students of singing today, the approximate measurements of "a good vocal instrument," in each sex.

Bel Canto, synonimous of simplicity and beauty, can only be achieved or formed through *relaxation;* it will never result from tension. The proper vibrato of the voice can only be obtained through functional co-ordination. Relaxation will permit functional co-ordination which in turn will set the whole system in *focus* for the production of the Sound-Tone.

The student must convince himself that *sound is produced with very little breath,* not more than is necessary to enunciate a word aloud (but not shouting). Consequently: *All the exercises must be performed with great naturalness and absolute tranquillity,* since it is of paramount importance that the beginner reach, in the shortest possible time, his first personal conclusion which is precisely *to give greater intensity only when necessary,* without altering the whole functional system in the process of emission.

Only thus can Bel Canto become spontaneous. All the rest, especially as a principle of study is mere exaggeration, more or less harmful.

VOCAL CORDS

TIMBRE

The *timbre* of the voice is produced by the action of the vocal cords differing from *quality* which is obtained by formation. *Timbre is natural: Quality is the result of study.*

Logically, therefore, a voice may be beautiful in timbre and ugly in quality. The first is not enough to warrant great hopes for success, while the second can lead to a brilliant career.

The union of these two requisites, at the height of their artistic expression, and under the impulse of a decided musicality, constitutes that sublime phenomenon that charms and enthralls.

It happens, at times, that quality succeeds in masking timbre, thus, one can easily mistake a mezzo-soprano for a dramatic soprano, a tenor for a baritone, a baritone for a basso and, strange as it may seem, a basso for a tenor. In order to avoid the very serious consequences deriving from such misjudgment, the use of a laryngoscope in the hands of a "nose and throat specialist," who has had an extensive experience with singers, is advisable. This scientific intervention is not, however, necessary, if the formation is correct and the teacher has an ear for the recognition of "mid-sounds" (open strings or neuter-sounds), which will, in a relatively short time, unquestionably prove to him with whom he must deal.

Fig. 2 *Larynx*

(from behind and above)

1, *root of the tongue;* 2. palatine tonsil; 3, vallecula epiglottica; 4, plica glossoepiglottica lateralis; 5, *inferior vocal cords;* 6, cuneiform tubercle; 7, corniculate tubercle; 8, pharyngeal part of the larynx; 9, mucous membrane covering the pharyngic wall; 10, fossa arytenoid; 11, rima glottidis (part intercartilagineous); 12, rima glottidis (part intermembraneous); 13, superior vocal cord; 14, epiglottis.

The comparison of the human voice with the bow-instrument is not a chance one, nor has it been chosen only for demonstration's sake. The great value of old Italian instruments like the Stradivari, the Guarneri and a few others, lies in the absolute uniformity in the quality of the four strings. *The unique properties of the timbre of those instruments are recognized but cannot be explained.* Nor can one say differently of the vocal cords.

At puberty a rapid development of the larynx takes place. The vocal cords are lengthened and a change in the voice occurs. The voice of a boy drops one octave; that is, a boy-soprano will become a tenor and a boy-contralto will become a baritone or a basso. In the girls the drop is only of two whole-steps.

The length of the entire fissure (glottis, 11-12, fig. 2) differs considerably in the two sexes. In the male its average length is 23mm.; in the female, 17mm.

The superior, or false, vocal cords are not directly concerned in the production of voice.

The inferior, or *true*, vocal cords when drawn tense and approximated together, are made to vibrate by the passage of the breath. — Vocal cords alone produce no sounds. — The vibrations are transformed into sound in the space called *resonating tube*, or *chamber* that is, that rather labyrinthic complex of bones, sinuses, muscles etc., above the larynx, in which the refraction of those vibrations takes place. When the refraction is acoustically correct, the sound can be called a *Sound-Tone*. Its correct conveyance, as we shall see, depends on other factors.

First to be interested in *phonation* was Leonardo da Vinci, who wanted to know "how the fistula of the trachea generates voice; and this can be seen and heard very well with the neck of a swan or a goose which often can be made to sing after death".

A. Berrein (1471) tried to obtain voice by blowing air in the larynx of a corpse. From the results he compared the vocal apparatus to a string instrument and proposed the name of vocal cords. (*corda* is the Italian for string). His comparison, however, is appropriate only from the acoustical point of view.

F. Savart (1825) compared the human phonatory apparatus to the conic reeds, or pipes, of the organ; which seems more logical from the mechanical point of view.

G. Müller (1837), by perfecting the experiments of Leonardo da Vinci tried to obtain the real voice from a corpse but he got only a feeble noise....., a vocal simulacrum, because the real voice is intimately related to the higher functions of the muscles and the nervous centers.

SOUND-TONE

OR MUSICAL-PHONATION OR ACOUSTIC-EXPIRATION

> *Art in general consists of the truths of science, arranged in the most convenient order for practice, instead of the order which is the most convenient for thought.*
>
> *J. S. Mill*

He who takes up singing should, first of all, rid himself of all those foolish theories which veil it in impenetrable mystery and render rational study impossible.

We have already said that the comparison between the *vocal instrument* and the *bow-instrument* is not a chance one. Now we shall see how the analogy is completed by the perfect correspondence of the structural parts which, in both cases, are responsible for the acoustical phenomenon.

If the walls of a violoncello were not hard, concave and smooth, the sound would be obtuse, opaque and, consequently, of no value. For the very same reason, the walls of the vocal instrument must be formed by all that is bony and cartilaginous, not by the tongue and the soft palate. The latter (tongue at its base or root and the soft palate) by interfering with the passage of the breath and, therefore, of the vibrations, do not only make the sound throaty,

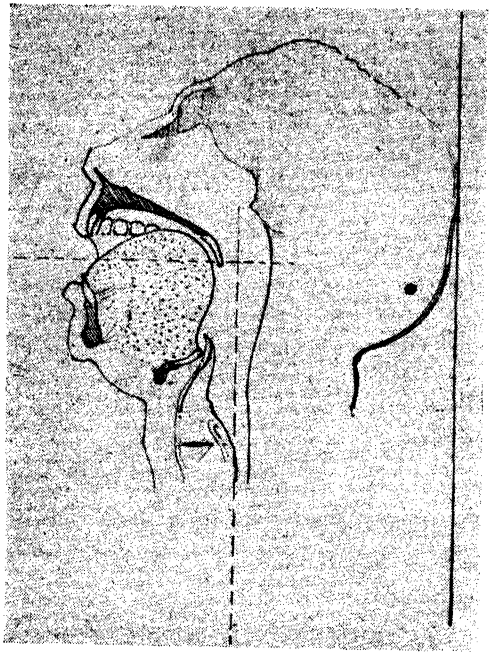


Fig. 3

Compare this figure with those shown at page XI, of the Webster International Dictionary, G. & C. Merriam edition, regarding "A guide to pronunciation" of the English language. See how the naso-pharynx is there — in the dictionary — completely shut by the stretched soft palate and the reason for the elimination of phonetics in this treatise will be perfectly understood.

but cause certain false movements of the labial muscle which are such as to deviate the direction of the sound itself and render it *oblique* (towards high or low, towards left or right), rather than straight and horizontal. This oblique sound is the ugliest because in the *forte* it has something sinister and feline.

The VOCAL INSTRUMENT - The BOW INSTRUMENT

Trachea and *Larynx*. *Mandible and Tongue* (the latter, by controlling the jaw with the sub-labial muscles will raise itself from its root, after which this back portion will passively follow the ascending and descending movements of the mandible). *Pharynx* (meaning the dorsal part, because it is bony, up to the highest point of the tongue, in the correct position seen above).	*Bottom* or *Back*
Nasopharynx (the vertebral column enclosed between two parallel lines, one at the level of the relaxed uvula, the other just below the zygomas). (See Table of registered sounds.)	*Sides* or *Ribs*
Harde palate	*Top*
Oral cavity (and vestibule of the mouth) *Naso-Pharynx* *Nasal cavities*	*Resonating chamber*
Upper lip	*Left hand* (Technique)
Breath	*Bow*

As one can see the strings or cords, although indispensable in one case as in the other, are, nevertheless, of secondary importance

and are placed high in the violin and low in the vocal instrument, where the breath takes the place of the bow.

Let us mentally visualize the above picture. Let us thoughtfully ponder the fact, that by holding the lower jaw in, or set, with the sub-labial muscles, the internal portion of the tongue (root) is definitely controlled; that this, in turn, brings or allows the relaxing of the soft palate, the zygomatic muscles and, consequentely, of the upper lip (fig. 4 and fig. 9). It will not be difficult, then, to convince ourselves that on the *control of the facial muscles* depends that internal "formation" which will, finally, permit the production of that *Mid-central, pharyngeal, neuter-sound* which is the milestone and the basic, axiomatic principle in the art of singing. The reason is clear: The bridge — *Vibradotto* in our case — which is the most delicate part of the instrument, because it conveys the vibrations from the *cords* to the *resonating chamber*, is thus formed. All good players of bow-instrument can testify that an infinitesimal change or alteration in the shape, height, thickness or position of the bridge can spell the difference between the good and bad quality of the sound.

In the study of *phonation* or voice production as such, — that is, without articulation, which comes after, not before nor at the same time — there are four important though interdependent factors to be considered. They are: the physical (acoustic phenomenon); the anatomical; the physiological, and the psychological.

The last two, physiological and psychological phenomena, have made the study of singing appear a problem of unique complexity and the veil of impenetrable mystery which they constitute has been used solely to their advantage by the incompetents, the dishonest and the quacks. The cause for all this is the inexplicable neglect of the first factor, that is, the acoustical phenomenon. The result is the universal mistake of starting from the goal. In this

Zygomatic Muscles

Sub-Labial Muscles

Fig. 4

THE MOUTH IS THE "BELL" OF THE VOCAL INSTRUMENT.

The lateral muscles of the face are not directly concerned in the "lowering of the jaw".

The correct opening of the mouth is controlled with the sub-labial muscles "*Depressor Labii inferioris* or *Quadratus Menti*".

The lips "*orbicularis oris*" must remain relaxed.

manner, the student draws conclusions and forms opinions which, however, cannot be co-ordinated unless the point of departure has been definitely established. Because, if study is to be rational, it will be necessary to refer continuously to that point in as much as it is the center around which an entire system will be constructed.

I don't believe all this should be considered scientific, nor does the "Table of registered sounds," found in another part of the book seem to me exclusively intellectual. It is simply *music* or *art* in its essence. With regard to this I feel the imperative need of clarifying a state of affairs which in the study of singing has given rise to all sorts of histrionicisms. Information from competent sources and personal research have proven to me that there is on the market no treatise on the "Physiology of the Throat". It is, therefore, a sign of absolute irresponsibility for a maestro or instructor of voice to speak of, or gossip about, "false cords, hyoid bone, glottis, cricoid cartilage etc. etc.".

Bel canto which means nothing more than *correct or proper singing,* is the result of the perfectioning of that natural, hence spontaneous impulse which, in origin, must still be considered a phenomenon. The great singers have enraptured the whole civilized world without ever having concerned themselves with physiology. We shall say, therefore:

Control the vocal instrument from the exterior (with the facial muscles). It is the only pratical and conclusive way, if one's aim is art and not science.

Very likely, by now, the student will have realized, that *phonation* differs when regarded from the physiological and the physical points of view.

The physiological phenomenon is rudimentary, whereas the physical or acoustic is musical, hence artistic.

In those languages requiring the contortion of the tongue,

from its root or base to the tip, in order to obtain the characteristic articulation, it is necessary to bring the mandible (lower jaw) forward. This is very serious indeed because it develops muscles that absolutely must not be used in singing.

Thus, the first of the three concurrent and concomitant elements conducive to the *art* of singing, can now safely be stated.

Larynx, naso-pharynx, hard palate and nasal cavities, properly formed, constitute the musical instrument of which the mouth, correctly opened, is the bell. From this complex results only the Sound-Tone.

THE "ATTACK"

By the manner in which a sound is started and by the quality resulting from it, a singer can be judged.

In the artistic vernacular, this initial mode is called the "Attack". But, since no one has ever bothered to understand it or, still less to teach it, almost as if it were a negligible trifle, it has remained the prerogative of great celebrities. Especially because of this, then, it will be necessary to study it well and at length in the following manner:

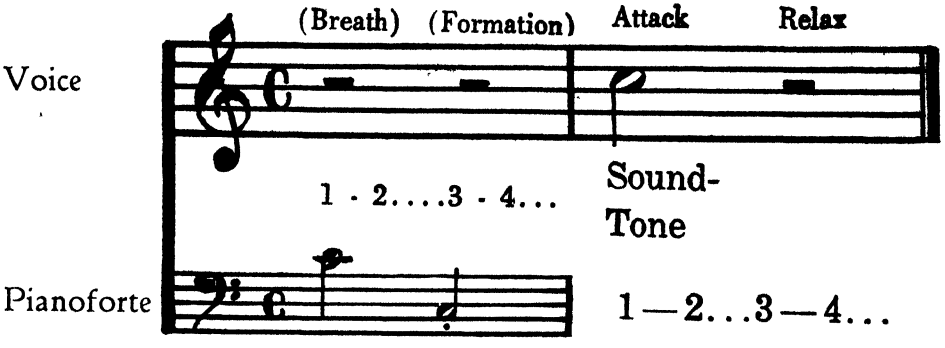
Initial position: erect but not stiff, heels together; shouders and arms relaxed. Head held high enough as to form an obtuse angle between the neck and the mandible (lower jaw). In other words: Stand close to a wall and contact same with the heels, the calf of the legs, the buttocks, the tip of the shoulder-blades and the occipit (fig. 5). This is possible only by holding the face in a upward-looking position.

Fig. 5

The position shown above comes instinctively to the natural singer in a musically sentimental phrase (piano or pianissimo). Good lyric tenors especially indulge in this, and in so doing, they often transmit to the listener a sense of relaxed enjoyment.

When the phrase is dramatic (forte) the head is pushed a little foreward; this is a necessity since fuller resonance of the voice is obtained only by making freer the passage of the vibrations from the larynx to the naso-pharynx (vibradotto).

Tempo: first *Largo;* then *Adagio; Andante; Allegro* and *Presto.*



Repeat the mid-central sound-tone many times and later begin to let the voice rise by half-steps. If any forcing is required, or if heaviness results in the production, the sound is not correct and the defect is caused by the wrong or careless opening of the mouth.

Explanation

Of course, it is assumed that the student has at least an elementary knowledge of musical theory.

1st and 2nd beat.

A) Mouth closed; teeth set; lips shut but relaxed. Let the air pass through the nose, slowly, till the

3rd and 4th beat

B) Open the mouth slowly. Remain absolutely still, with the respiratory system also, until the

1st and 2nd beat of the succeeding measure.

C) Attack of the mid-central sound, without the vowel. (see Registers).

While *inspiration* is taking place, it will be necessary to:

1) Drop the lower lip to the level of the gums.
2) Extend, or tense the sub-labial muscles on both sides (fig. 4) obliquely downward

in such a manner that the mandible is lowered all the way without stiffening the neck and independently of the zygomatic muscles and the upper lip. *Never bring the lower jaw forward or allow it to deviate its vertical descent.*
The lower part (bottom) of the instrument will, thus, have been formed.

From the 3rd to the 4th beat, using two mirrors, to see that:

1) The upper incisors are completely hidden or covered, by the relaxed upper lip (in contrast to the lower incisors which are always showing).
2) The sides of the whole labial muscle and the corners of the mouth are parallel each with the other. (*The corners of the mouth are of decisive importance in the conveyance of the sound*).
3) Two imaginary lines, one through the center of the mouth (between upper lip and lower incisors), the other vertical from the ground, and joining at the center of the nasopharynx form the *right angle* (Fig. 3), indispensable for the horizontal direction of the sound (Fig. 9).
4) The entire procedure has been effected with great naturalness.

This will be the resonating chamber of the vocal instrument. Though it will take some time, metronomic precision must be attained.

This should really be the A B C's of singing, but since, as we have already seen, it is obviously impossible to buy a mouth made-to-order (like one acquires a violin), it has been necessary to first explain how the instrument for musical phonation is formed. In other words we have had to explain, first of all, how the mouth must be opened in order to let the sound-tone pass through. This constitutes *formation* which I have been mentioning from the start.

Lowering of the jaw must also be studied or practised separately — without producing the sound — and extremely slowly. It will take some time before one is able to control its continous, slow descent.

It will not be superfluous to repeat that the naso-pharynx must remain open for the low notes as well as for the high, but especially for the mid-notes (octave-eleventh). These, — six in number — as the name suggests, belong to the middle register of

the voice and start at the level of the hard palate, but actually in the center of the naso-pharynx itself. They can therefore, be produced in their natural state — and their pitch is always perfect — or they can be directed forward, by using the corners of the mouth or the upper lip, or both, as we shall see in the following chapter. These are the *hollow* sounds comparable to the open strings of bow-instruments. Their resonance is full and of marvellous richness. *They reveal in all its naturalness the timbre of the voice.* In fact, when the latter is good the *hollow- pharyngeal- neuter-sound* can be of such musical beauty as to make one shiver. Moreover, being *only possible when perfect formation is present, they are of consequence the typical sound-tones of the vocal instrument.* By virtue of their unique sonority they enrich with artistic beauty the shaded passing from a close (or dark) to an open (or light) vowel or viceversa. They serve as a preparation for a change of register — the same as the change of position in violin playing—they are a true aid in the *portamento*[1] of the voice and often of great resort in the attack, when the voice is still "cold."

To demonstrate the above I shall cite the best example known to me: the *Largo* by Handel "Ombra mai fu" (Xerxes) Victor recording n. 8806, sung by Enrico Caruso.

Listen very attentively to the *attack* and the *crescendo* of the first note, D♮.

The sound, perfect in pitch, starts inside the naso-pharynx

[1] Artistically speaking "portamento" is the most characteristic and the most beautiful effect of the *legato*, possible only with vocal, viols and sligh (modern trombone) instruments. by which the interval loses its abruptness and is, thus, shortened. It must not be confused with the "strisciato" (slided), another effect of the legato which can be described as "the passage from one note to another, in which the intervening sounds are heard."

Portamento varies from one interval to another, from one school to another and even from one individual to another.

neuter — and as it gradually increases in intensity and becomes an open ò, by the almost imperceptible push given by the zygomatic muscles at the corners of the mouth, it expands in the whole mouth itself and in the nasal cavities, until it is horizontally directed outward. This grand effect is obtained through perfect formation and absolute immobility of the resonating chamber of the vocal instrument.

To be able to detect all this, three things are essential: a record in good playing condition, a very fine electric phonograph and for the listener a first class musical ear.

Make no mistake. The study of singing is the study for the formation of the resonance chamber of the vocal instrument.

Should serious difficulties be encountered for the *attack* there is no alternative left but to eliminate the cause of all troubles (see radiographs I and II).

(A') Push the head foreward, a little upward, so as to form an obtuse angle between the jaw and the neck, at the same time relax the shoulders and breathe *slowly and lightly* through the nose.

(B') Pull, or contract, the zygomatic muscles until the upper lip forms a straight line, exactly as you do in smiling. Extend the sub-labials (Fig. 4) as much as you can, but be sure not to stretch the lip instead, until you uncover as many lower teeth as possible. Drop the jaw *slowly* until the upper and lower incisors are one half inch or more apart (Fig. 6). Do not let air pass through the mouth. The immission must be done exclusively through the nose. When in doubt about this start the whole thing over again[1].

[1] Breathing through the mouth is, more than any other factor, responsible for the contracting, almost spasmodic effort in which so many uninformed singers indulge nowadays.

(C') Study all the exercises of all the registers with this formation and in those where two immissions of air are required, repeat the entire preparation A'-B' and finish the exercise.

Continue this study untill a new idea of the timbre and the quality of your own voice is obtained. Do not try to articulate vowels and consonants during this period. In due time, the devolopment of the zygomatic muscles must be started. This is accomplished by alternating the contraction with the complete relaxation and-or the utmost extension of said muscles.

Remember that the shape of your vocal instrument, which you probably thought was so natural, is, instead, abnormal and must at all costs be corrected *before* the real study of singing is begun. Of course, the extent of time such correction will require is entirely dependent on your own talent for this art and on your will power.

The new criteria acquired in this study will, however, provide the physiological and psychological preparation you need in order to be able to understand and to follow this systematic guide. Hence:

When you shall see that you can do whatever you like with the upper lip, without interfering with the rest of the formation, which, in turn, is controlled by the continuous tenseness of the sub-labials, you may start the *attack* in the normal way.

Plate I

Plate II

Lateral Radiographs of head and neck of students (females) at beginning of their study.

Plate I shows a formation subsceptible of improvement.

Plate II: Head is kept back; lower jaw is thin and very much protruding. Two thirds of the tongue rest in the pharynx and the soft palate closes the naso-pharynx. The zygomatic muscles are undeveloped and probably cannot be developed, consequently the upper lip remains high and too far removed from the opening. Respiration is done mostly through the mouth.

Singing: Very fatiguing; never beautiful; injurious to the vocal cords.

Plate III

"Correct formation"
(male)

Compare this radiograph with Fig. 5 and also with the "Table of registered sounds." Note: Head is kept in a natural position. Tongue rests in the mouth proper, that is, in the space within the teeth, consequently the soft palate is constantly relaxed. Inspiration is complete because it is done either through the nose exclusively or through "nose and mouth" simultaneously. Vibrations pass freely from the larynx to the hard palate or to the naso-pharynx, hence full resonance of the voice is obtained. Articulation done with the anterior part of the tongue and with the facial muscles will not interfere with the Sound-Tone. "Bel Canto" is thus possible.

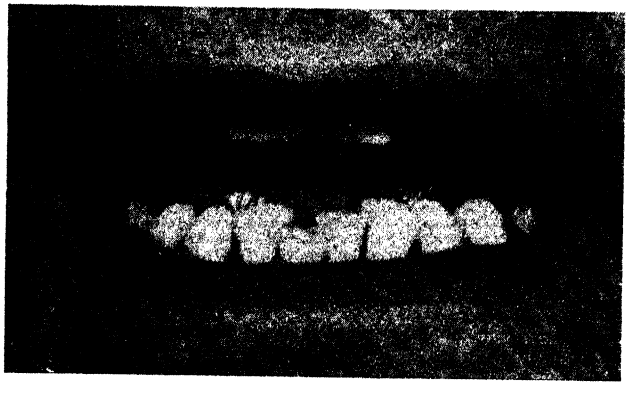


Fig. 6.

NEVER MOVE THE MOUTH (Bell) ACCORDING TO PITCH

The formation above, or the one explained for the "Attack" A-B-C and A'B'C' or, in fact, any correct formation, if held firmly enough, will allow the Sound-Tone to locate its own place in each of the registers. When this is not possible, the defect must be looked for in the "Vibradotto" hence, in the opening of the mouth which controls it.

STUDY OF THE "SIMULTANEOUS RESPIRATION"

Immission: with the mandible fully lowered: by completely covering, or hiding, the maxilla (including the teeth) with the cheeks and the upper lip, let pass the air, slowly and in almost equal volume through the nose and the mouth.

Hold still for 2 or 3 seconds, then:

Expiration. Physiological: by relaxation (through nose and mouth).

Acoustic: without the slightest movement of the mandible, the facial muscles and the oral passage: *Make the Sound.*

This is the real study for the perfectioning of the musical phonation, or Sound-Tone. In fact, when perfect formation is present, this attack is done spontaneously, in order to make sure that "larynx, vibradotto and resonating chamber" are properly connected.

The great advantages to be derived from it, are:

1) Full attention is concentrated at the focal point (hard palate, naso-pharynx and oral passage).
2) Relaxation of all the muscles, or groups of muscles, that are not essential in singing.
3) Understanding of the position, or placement, of the Sound-Tone in its natural process, that is: sounds below the mid-central note will start attached to the hard palate; the mid-central note itself may start either attached to the hard palate or in the naso-pharynx (it needs a little help of the facial muscles in either case); all the notes above will sound in the naso-pharynx (See Registers).
4) Revealing of the real timbre and compass of the voice, hence its proper classification.
5) Will definitely restore a good formation which had been rendered acoustically defective by wrong use (spoken language, faulty study).

COLOR

Color is the outstanding prerogative of *quality* and, in order to avoid confusions, should not be used in reference to timbre for which "Clang-tint", for example, is more appropriate. It may very well result from a combination of timbres, as the color or *tone-color* of the orchestra demonstrates. In fact, orchestrating or scoring is coloring.

In relation to voice, thus, color or tone-color can only result from or be obtained by *articulation*.

It is absurd, therefore, to speak of vocal cords when the quality of the voice is to be judged. All the blemishes or imperfections of the singers in musical utterance have one and the same origin.

The voice becomes shrill and penetrating, opaque, wanting in pitch, uneven, unclassifiable and always unpleasant not because of defect of the vocal cords, but because the muscles of the face (cheeks) do not *form* the covering walls, which, surrounding entirely the bony structure of the upper part of the mouth (maxilla or upper jaw-bone), will permit the phonation of those color gradations which, in the last analysis, are the vowels.

VOWELS

QUALITY, OR COLOR OF THE VOICE AND ITS SHADINGS

The timbre of the flute and that of a woman's voice form, when united, a distinct quality which varies, however, according to the register of the former[1].

Because of this, complete fusion cannot occur except at certain notes, that is, only at those steps of the scale where the new quality obtained makes very difficult, if not impossible the individualization of each separate timbre.

The string quartet, which is the most refined expression of instrumental music, attains to an exquisite uniformity if the instrumentalists are of the same school (usually from the same country) and to a complete fusion if, in addition, four instruments of the same master are used. This is simply because the mode, manner or way of playing constitutes the quality which amalgamates the sound and renders it homogeneous.

How can one, then, hope to obtain uniformity, not to mention fusion, in a quartet sung, for example, by a Russian, an

[1] It is not by chance that the vocal instrument has been called the most beautiful and the most perfect of all. The difference in quality between registers is more noticeable in the flute — in fact in all wood-wind instruments — than in the human voice.

American, a German and a Frenchman or even, and why not, by an Italian?.....

It has been frequently said, during almost an entire century, that the world is indebted to the "Land of Song" for the art of *Bel Canto* or beautiful singing. But, if the means by which singing in Italy was developed to perfection may be various, the development itself has been possible by virtue of the purity of the Italian vowels. It is not a secret that he who strives to form a *Bel Canto* with the vowels of his own country and relies on the sayings or maxims put in circulation, especially nowadays, by almost everyone, from a piano-player or a half-trained singer to a shoemaker or a barber, will reap only disillusion and discouragement.

Taking as our model the Tuscan language called by Byron "musica favellata"— spoken music — because as Manfredo Vanni said "it is endowed with that lucid *property of formation* which distinguishes it" we have seven vowels or seven color gradations. They are:

a,
è, open (or light)*
é, close (or dark)*
i,
ò, open (or light)*
ó, close (or dark)*
u.

The Italian dictionary informs us that the vowel is obtained by merely opening the mouth. Such a definition, if nothing else, gives an idea of the simplicity and naturalness which constitute the peculiar phonetics characteristics of that colorful vernacular. — Those who like to sing but cannot open their mouth without

* French and German have also two shades of *e* and *o*.
In English ē is a close vowel as compared with the open ă.

twisting the tongue in the process, should take notice of this. — But from the vowel as defined above to the sonorous vowel, or color-gradation of the sound-tone, the way is very, very long indeed.

The *a* and *o*, perhaps because they are the most important, are the most difficult, and once they are understood and produced correctly the problem of singing can be declared solved, but not until then.

In order to distinguish the vowels better they can be divided into two classes or families:

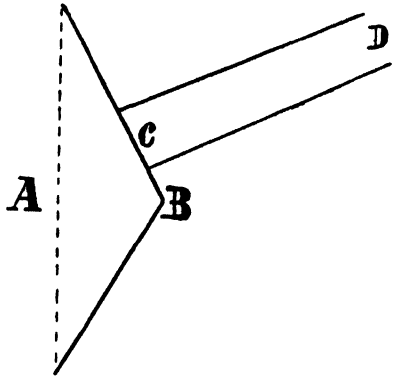


Fig. 7

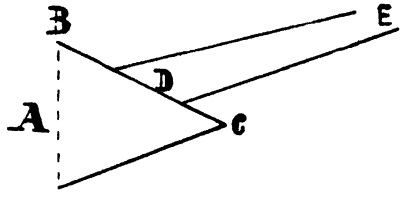


Fig. 8

1st) a, o, u, — depending on the oval opening A, and on the geometrical relation between the zygomatic muscles C D and the obtuse corners of the mouth B. (fig. 7).
2nd) e, i, depending, instead, on a narrower opening A — corners of the mouth are more acute C — and on the push (tenseness) given by the zygomatic muscles D E to the upper lip B C. (fig. 8).

Were we to stop here, we would have said absolutely nothing. In fact, no grammatical definition or geometrical demonstration can succeed in giving even a vague idea of what "vocalization" must be. And it would be absurd to expect the contrary, for the evident reason that *one speaks with the vowel while one sings with the sound-tone.*

The *color gradation* (musical color) — for example, o, open or close is darker than *a; u* is darker than o, etc. — must be used so as to be able to speak while singing or, better still, to speak on the sound.

To speak on the sound — in Italian "parlare sul suono" — is the maxim which has been most repeated by maestros, instructors and singers. It can only mean one thing: that the sound must not be stopped or actually broken during articulation, which, in turn, can only refer to the passing from one vowel to another. Hence the compelling need of distinguishing the vowels as "gradations of color". In fact, *if five vowels are sung "legato" one after the other, on any single note of the scale one does not hear five sounds, or five tones, but five color gradations of the same sound-tone.*

The articulation that interferes with the production and conveyance of the sound-tone, cannot be used in correct singing, because it trivializes or even degenerates the acoustic properties of the sound itself. Logically, therefore, the only way through which a continuous sound-tone can be obtained, while the proper articulation takes place is by first achieving the continuous or constant internal formation. This means that the position of the back of the tongue must remain constantly correct while the jaw and the upper lip move, as they must, and sometimes very rapidly, during the utterance of vowels and some of the consonants. In other words, all the work done by the muscles of the neck and under the chin plus that done by the soft palate and the back portion of the tongue, if there is any, must entirely be transferred to the *sub-labial and zygomatic muscles,* to the *upper lip and the corners of the mouth,* and to the *lower jaw* (Fig. 9).

Solely when — through the proper use of the zygomatic muscles — the upper lip or the corners of the mouth, or both together, form that more or less geometrical figure which will allow the neuter-sound, that has by now reached the opening of the mouth, to present itself in its true musical color, the vocal (or vowel's) gradation can be correctly obtained. This fundamental concept

cannot be altered without breaking away completely and definitely from singing.

Here, it seems to me, we have further evidence that this art has been neglected and perhaps not understood, since as a very law of nature, the color of the voice should have by far preceded the famous orchestral "palette."

The reader must have already well realized that to venture into the study of color and its shadings without first having produced and conclusively identified the sound-tone can prove both hazardous and futile.

When the intrinsic muscles of the color gradations — zygomatics and upper labial — have never been used before the student will find himself confronted, at first, by a dangerous maze. He will, therefore, have to proceed with caution because the use of said muscles will be possible only for a few minutes at a time, due to the soreness it causes to the whole face. Something similar can occur when all abdominal muscles are used in "forced expiration."

Such must be the earnest and reasoned effort, because such are the elements of serious and assiduous study if one wishes to achieve the form employed by those who sing correctly by nature, that is, those rather fortunate creatures to whom everything is easy and spontaneous, with no need of analogies, or grammatical definitions, graphic demonstrations or, still less, of scientific explanations.

He who does not have this facility nor succeeds in attaining it through exercise, does not possess the anatomical structure indispensable for the production of the sound-tone.

The maestro or instructor who knows his subject can give an almost exact judgment of the prospective student by merely observing the way he opens his mouth and by examining its internal structure, without having to listen to a single note.

The palate must be wide and well curved, that is, the oral

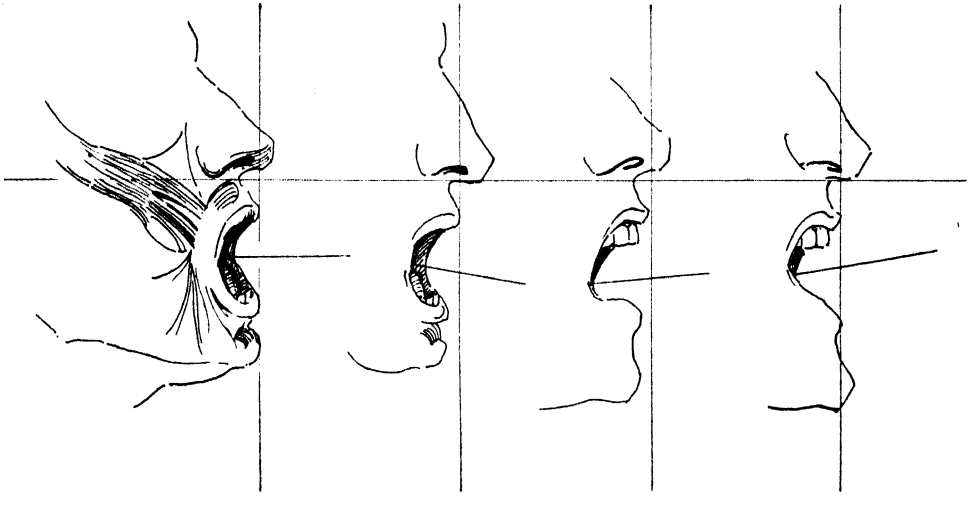


Fig. 9 Fig. 9a Fig. 9b Fig. 9c

Fig. 9 Correct position of the head and proper opening of the mouth result in horizontal direction of the Sound-Tone.

Fig. 9a Bending of the head, even when the mouth is correctly open, causes the wrong direction of the sound.

Any obstruction in the oral passage — by the soft parts of the throat — may result in asymmetricalness of the sphincter (labial muscle) hence, in obliquity of the sound.

Figs. 9b and 9c give an idea of what usually happens when the zygomatic muscles and the upper lip are not used properly.

cavity must be broad and free of deformities. The upper lip must completely cover the teeth. Uncovering them is often the result of habit, but not rarely, it is a clear indication of a natural-defective-formation.

The unique quality of the vocal instrument consists precisely in the shaded passing from one gradation (vowel) to the other, made possible by virtue of the elastic properties of the ligaments, cartilages etc.

Hence, the second element conducive to the art of singing can now be added.

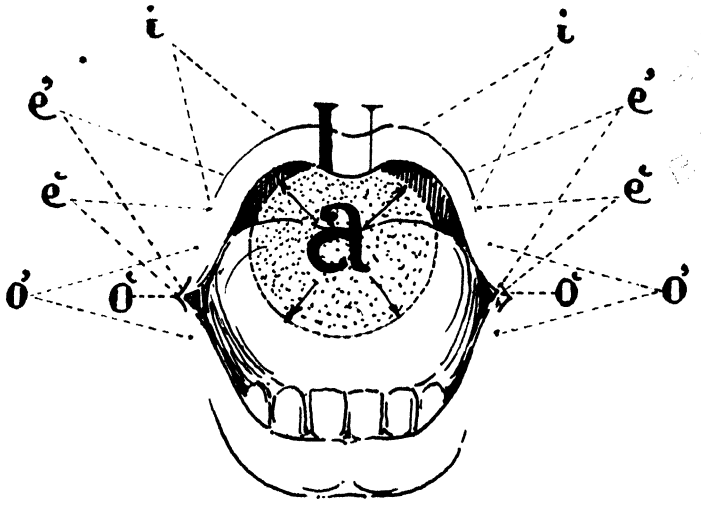
1st) Larynx, naso-pharynx, hard palate and nasal cavities, properly formed, constitute the musical instrument of which the mouth, correctly opened, is the Bell. From this complex results only the sound-tone.

2nd) *The labial muscle, with its fleshy covering, is the sphincter which makes the gradations and the shadings.*

Now, then, when the note is one the sound-tone is also one. Its gradations, instead, may be 3, 5, 7 or even more, according to the spoken language one refers to and to the more or less accurate specification one wishes. It can never be repeated too often that the sub-labial muscles have the very special task of controlling the mandible in its descent and the posterior part, or pharyngeal portion, of the tongue; nothing more than this. Such a task, however, is definite and permanent.

If the complete relaxation of the zygomatic and the whole labial muscles allows, when the jaw is fully lowered, the production of the neuter-sound-tone — which from the mid-central to the mid high notes crosses the naso-pharynx and rises or falls vertically like mercury in a thermometer — to obtain the color gradations (vowels) one must, first, divide the upper lip, from one corner of the mouth to the other, in as many parallel zones as there are gradations.

TABLE OF LABIAL ZONES FOR THE VOCAL GRADATIONS



NEVER USE THE TONGUE IN THE PRODUCTION OF VOWELS.

The gradation "a" is acoustically correct when obtained with the sides of the labial muscle, from *i* to *ò*.

Throughout this treatise an effort is made to explain the necessary preparation, and to indicate the very muscles and even the exact portions of the same muscle which must be used to obtain the true color of the Sound-Tone. It should never be forgotten that *Breath, Formation, Color-Gradation* and *Sound-Tone*" are interdependent; that is they can either be all correct or all defective. When an imperfection in anyone of them exists the articulation of consonants can only make things much worse.

Unfortunately, sounds cannot be written. They must be heard and judged by a truly fine musical ear. Thus, the student's talent is here seriously put to the test.

In the majority of cases, even those who have talent for singing are not able to avoid the "throaty" *a,* especially in some notes.

.....By *throaty* is meant that sound stationed between the tongue and the soft palate, absolutely devoid of resonance due to the closing of the naso-pharynx.....

Let us begin with the narrow opening, not only because it is easier, but because it is more important for the development of the zygomatic muscles, which here have to be extended to the limit. The retractile properties of these muscles cannot be used from the mid-central note upwards, in as much as they cause a pulling at the corners of the mouth, thereby giving the whole labial that be-convexed shape which flattens the sound and makes it musically disagreable. The è thus produced is tollerable and, at times advisble, only in the low and central registers (Fig. 6).

The movement of the corners of the mouth and the entire labial region must be convergent, and the vertex of the triangle will be at some distance, outside of the lips (Fig. 10).

By protruding the upper lip, at the point indicated on the preceding "Table" without relaxing the sub-labials in the process, the *e* will be obtained. Very probably, the gradation will, at first, result too open, or whitish, that is wanting in quality. The color can be intensified or darkened by the further and more effective use of the muscles in question. The color gradation, or vowel, (any of the seven) is correct when the voice can move freely form one register to any other without altering the "formation" used at the start. Thus:

è, é, i,

must resonate outside the oral cavity, between the upper incisors and the upper lip — vestibule of the mouth — and the vibrations must adhere precisely to the protruding portion of the lip (Fig. 8 and Table of "Color Gradations").

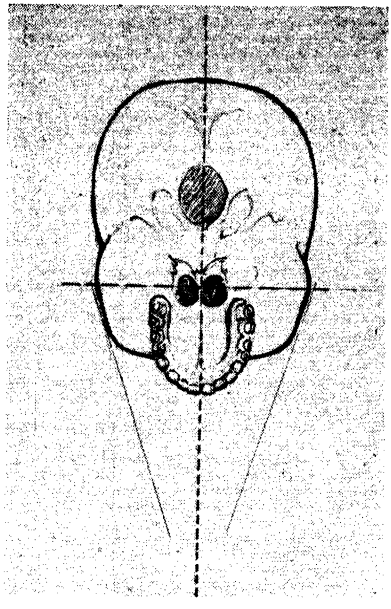


Fig. 10

From the open *e* to the close *e* and to the *i*, the anatomical and physiological possibilities of the student come into play. If the mandible, in its swinging motion stays well attached to the upper jaw (maxilla), like a door to its hinges, the close *e* and the *i* will be obtained in their true musical color.

The lower labial has, to a certain extent, a secondary importance because its co-operation is more or less hindered by the continuous pulling of the sub-labial muscles. Neverthless, at times, as for the gradation *u*, it must passively follow the sphincteric action of the upper lip. In the narrow opening, which is here in question, the lower labial helps the upper by actually working against it, that is, it helps the sub-labial muscles in holding the lower jaw in or set, facilitating thereby the protruding of the upper labial.

Let us consider the distance between the larynx and the upper incisors, to be crossed by the breath now transformed into vibrations and we shall definitely understand why the internal portion of the tongue must at all times remain high and rigid.

è - u; é - u; i - u;
è - é - i - u;

To pass to the *u*, which as concerns the muscles is the most difficult, the following will be necessary:

From the *e* — open or close — or from the *i*, lower the mandible to the limit. This will be the distance between the lower and upper incisors required for the first group or family of gradations *a, o, u.*

Do not allow the sound to stop or break when lowering the jaw and control its descent by pulling as much as possible with the sub-labial muscles. If these very important muscles do not work properly the passing of the vibration will be obstructed and the internal formation cannot be controlled.

At the same time that the mouth is ovally opened to its maximum, lower the center of the upper lip, as if almost to compensate for the space or the distance run by the mandible. By proceeding in this way the color of the *e*, or of the *i*, will be continuously intensified or darkened until the *u*, which is the darkest of all gradations will be correctly obtained. The guttural character or throatiness of this vowel will have, thus, been avoided.

u - ò; u - ó; u - ò - ó;
è - é - i - u - ò - ó;

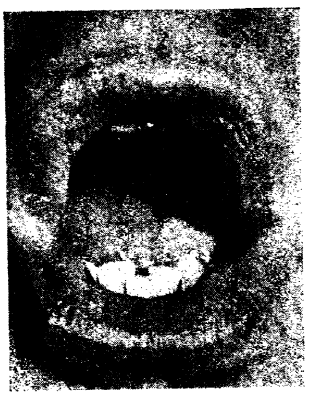
By relaxing only that part of the upper lip that has been used for the *u*, the gradation o (close) will be obtained and by relaxing

TABLE OF THE INTRINSIC ARTICULATION FOR THE COLOR GRADATIONS

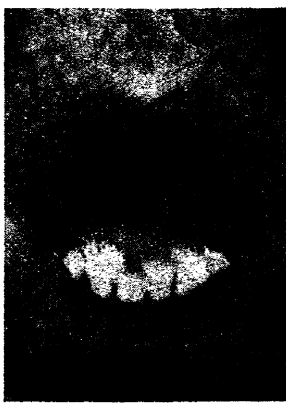
a,
o,
u, } 1st family

a

ŏ



ó

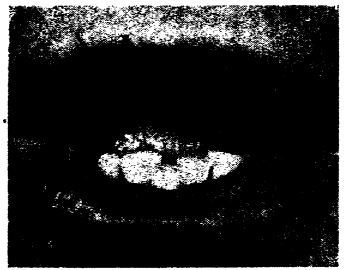


u

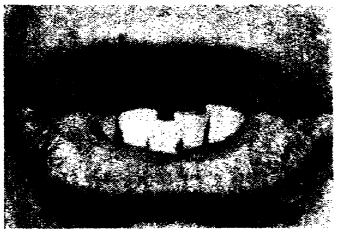
e,
i, } 2nd family

ĕ

i (relaxed)



é



í (tense)

The purpose of this study is the "passing from one family of vowels to the other, without moving the tongue.
All gradations should be studied singly; e, i, u, being the order most convenient for the easiest approach.
When the *i* is used first, the relaxed hue is much to be preferred.
The tense *i* sounds best after *e*.
The *u*, obtained by pursing the lips (not shown) should be avoided as much as possible.

the latter the open o will result. Then, by holding firmly the upper part from one corner of the mouth to the other and by relaxing only the lower lip (not the sub-labials) the *a* will finally be produced.

a,

The vibrations of this gradation are actually felt towards the opening of the mouth, like an air bubble just a little back of the incisors that is stopped in its ascent by the hard palate; hence, its outward, horizontal direction. Thus produced, the *a* will be easy, light and very pleasant, in fact, the most beautiful of all the vocal gradations (see Table of Labial Zones).

If the English phonetics could be used at all in relation to singing we would say that the *a* should sound like the sonorous part of the *r*, that is, the sound without the rolling, which is represented by the letter and not by the name of the consonant. But such a reference besides lacking in clarity, would be altogether impossible for some gradations.

The English dictionary tells us: "For each distinct *vowel sound* there is a distinct configuration of the oral passage, which assumes various forms through different adjustments of the flexible or movable parts of the mouth; namely, the tongue, soft palate. lower jaw, lips, cheeks, and the walls of the pharynx."

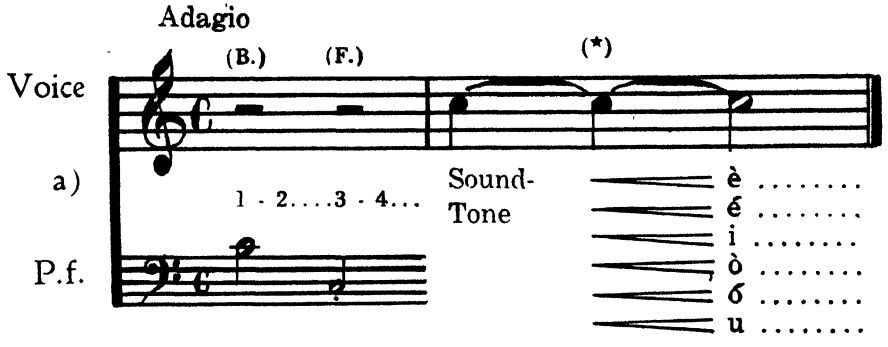
In singing, instead, the distinct configuration of the oral passage must absolutely be permanent and inalterable, and the proper articulation must be done or obtained with the lower jaw, the upper lip and the facial muscles (cheeks).

It is evident by now that the timbre of the voice without *quality*, is a raw material, upon which work must be started at once.

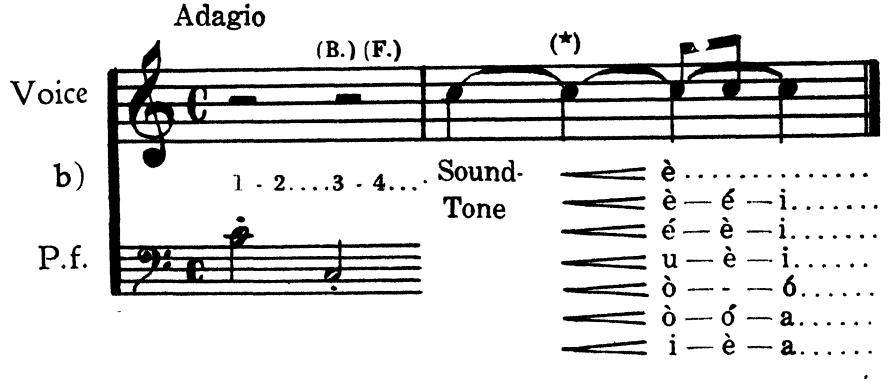
Study with care the "shaded-passage" from the mid-central (neuter) Sound-Tone to and through all its color gradations.

Exercise n. 1.

This exercise is also efficacious if sung mentally.



(*) Rather slow preparation of the shading.

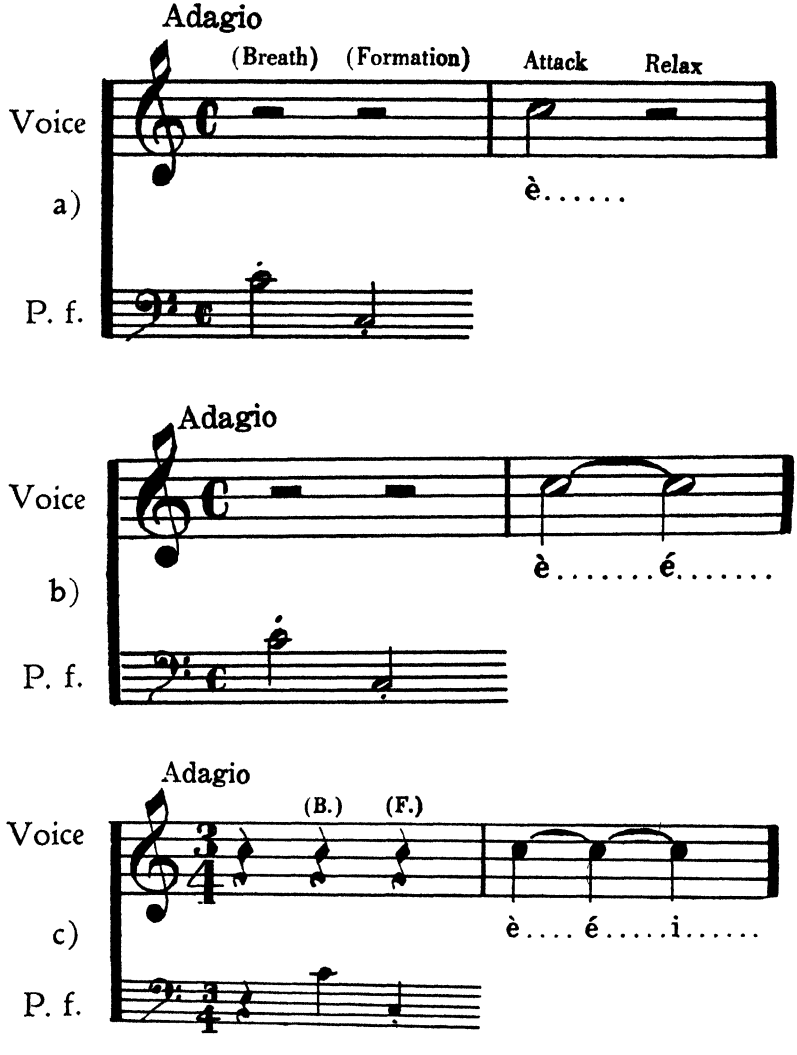


The number of combinations is quite large; use at least those indicated on page 67.

N. B. If the "formation" is not absolutely correct, it will be impossible to even understand this exercise.

Study the gradations on a single note in order to understand the *legato* which, in singing, starts with the shadings.

Exercise n. 2.



In these exercises proceed by half-steps up to the mid-high note or even a whole-step higher.

In descending the low-central note can be reached.

Alternate the gradations in order, as follows:

1) è,
è - é,
è - é - i,

2) i,
i - u,
i - è - u,
i - è - é - u,
i - é - è - u,

3) u,
u - i,
u - i - é,
u - i - é - è,
u - é - è - i,

1st summary

è - i - u,
è - é - i - u - é - è,

---

4) u,
u - ó,
u - ó - ò,

5) ò,
ò - ó,
ò - ó - u,

6) ó,
ó - ò,
ó - ò - u.

2nd summary

è - i - u - ò,
è - é - i - u - ó - ò,

---

7) ò,
ò - a,
ó - ò - a,

8) è - a,
è - é - a,
è - a - é,

9) u - a,
u - ò - a,
u - a - ò,

10) i - a,
i - u - a,
i - a - ò,
i - ó - a,
i - ò - ó - a,
etc.

3rd summary

e - i - u - o - a,

è - é - i - u - ó - ò - a,

Complete resume':

i - e - a - o - u,

i - é - è - a - ò - ó - u,

Each gradation and each group of gradations must be repeated as many times as will be necessary to permanently achieve the technique required. The aim is evident: to attain the correct performance of the fundamental exercise

a - e - i - o - u,

and also

a - è é - i - ò - ó - u,

The gradations must be equal in value and intensity, that is, they must be all half-notes or all quarter-notes.

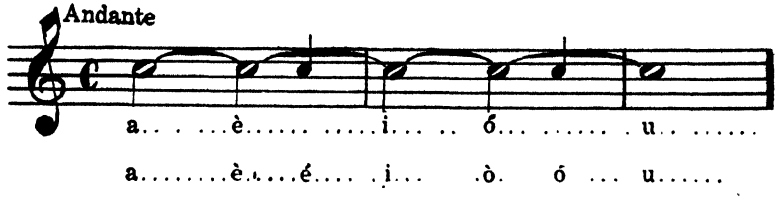
If the attack has been studied correctly there will be no need of correction and for the moment nothing more must be expected. Only after having completed the study of the registers and of consonants can one return to these exercises with more advanced criteria.

This preparation which may seem long, but in actual practice is not so at all, is necessary in order to attain great familiarity with the color of the sound and its shadings.

Where there are more than five gradations the *tempo* can be accelerated without ever, for the moment, diminishing the intensity.

Exercise n. 3.

(B) (For.)



D. C. half-step higher.

If the exercise is performed correctly, it will be noticed that only the intrinsic muscles of the gradation and all those of "forced expiration" partecipate in the action, The rest of the body is relaxed.

The student will certainly have noted that here we have never once mentioned "breath", and at this point he will have realized that if, through the proper formation, the position (or internal placement) of the sound is correct, the breath is required only for:

1) *the attack and the continuation of the sound.*
   "Staccato" is nothing more than a repeated attack.
2) *all the dynamic effects:* crescendo, diminuendo, forte, piano, mezza-voce, fortissimo, pianissimo, morendo etc., in short, every musical effect that in the violin is made possible by the bow.

Avoid forcing at all times so as to spare the ears the torture of sounds that go false or that give the impression of being swallowed, long before they cease.

Only through the competence acquired in this study can the student gain the right to exercise and develop the whole compass of his voice with a clear conscience.

REGISTERS

The "impostazione" or the "placement" of the mid-high sound and of the half-step immediately succeeding it (F♯) has, for many years, given tenors ground for long discussions.

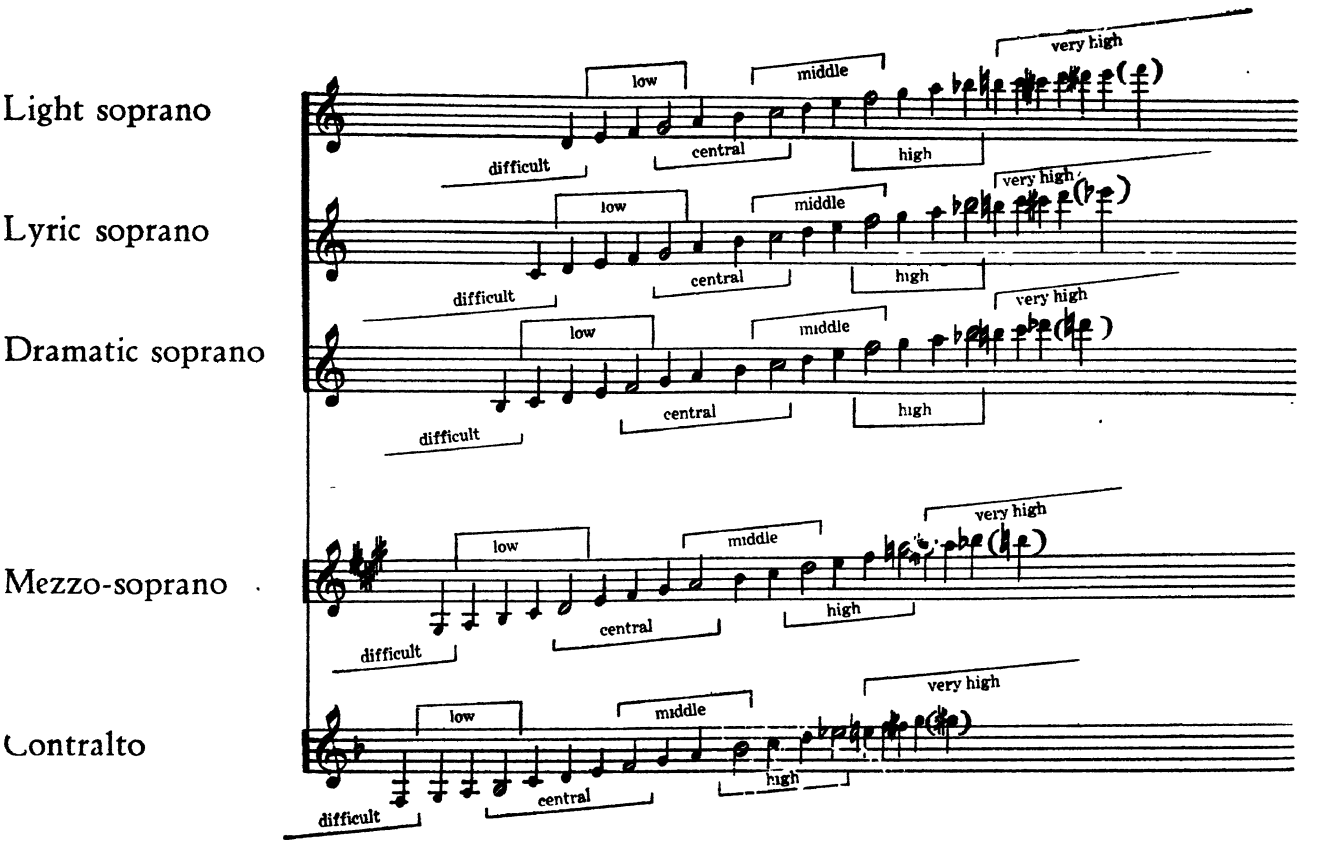
Sopranos, instead, have difficulty with the E♮, which comes before, and is often wanting in pitch; but, as far as I know, they have never given it much thought.

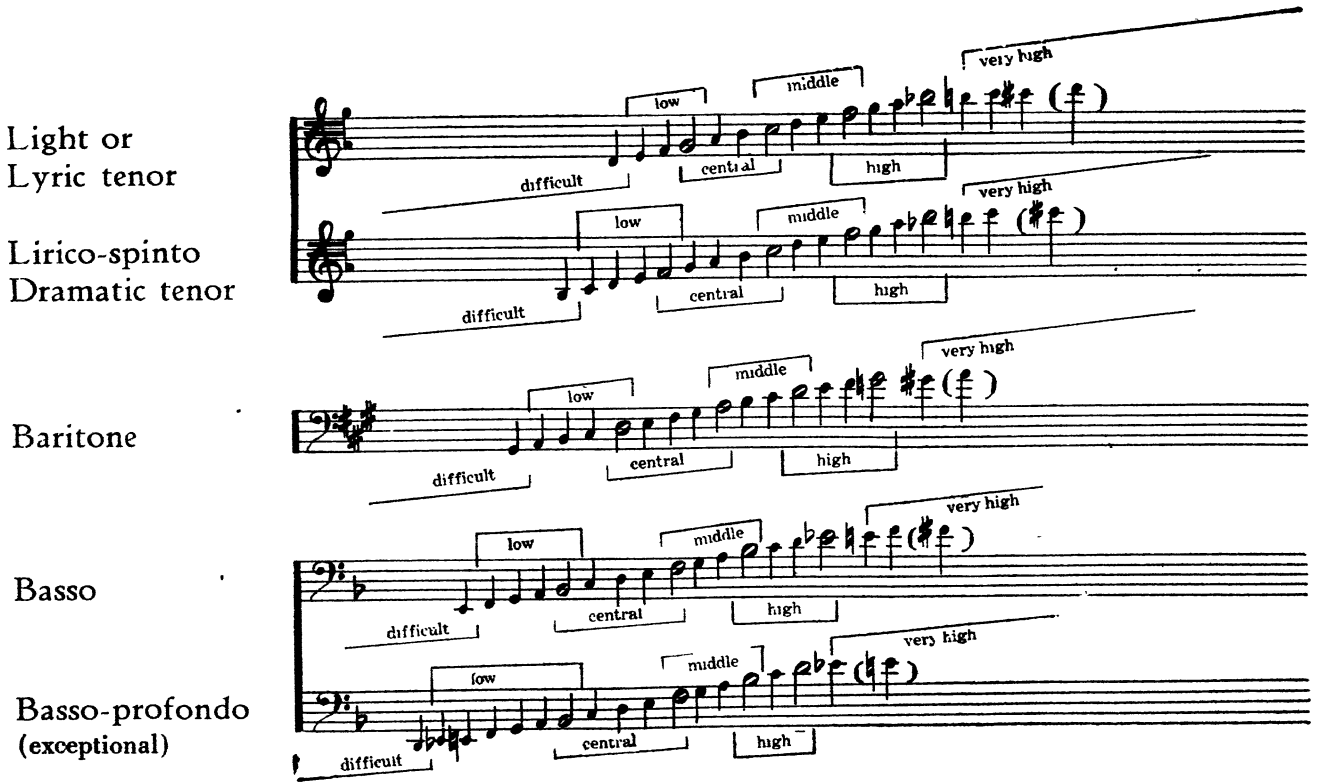
The truth is that the passing from the middle register to the high brings out more vividly faults of study and schooling.

A careful analysis of the compass of the voice will show that the mid-central sound is much more important than the mid-high, for the very simple reason that if the voice is to be developed equally and homogeneously, from one extreme to the other, the place of the model sound (the most spontaneous of all) can be nowhere else but at the center.

The rational study of every instrument (except perhaps the *brass* and for reasons which confirm what we would here demonstrate) begins at the intermediate point between the central and middle registers — pianoforte, harp, violin, clarinet etc. Therefore to begin from the lowest note, as is universally done in singing, is no less absurd than to begin from the highest. Having established two points of reference, the third and fourth follow as a matter of course. Thus, each voice of the entire vocal gamut is finally divided into almost equal parts which, as usual, we shall call registers.

TABLE OF REGISTERS FOR THE SIX VOICES





N. B. The notes in parentheses ( ) are exceptional.
The half-notes can be considered as belonging to two registers.
To simplify matters 2 keys instead of 6 are used.
Good "dramatic sopranos" can easily reach the low Bb.
The "lyric tenor" as indicated in this Table has disappeared from the stage together with the old repertory.

The vocal instrument (bottom, cover, resonance-chamber) must never be moved, at least never perceptibly, no matter what the number and the rapidity of the notes or grades may be, until the breath stops (or the bow is raised).

In alternating the gradations, only the intrinsic muscles of "vocal color" (technique) and the mandible (bell) must be used.

All that constitutes the instrument must have a costant, inalterable formation, so as to leave the now neuter and the now gradated sound free to move from the oral cavity (central and low registers) *to the rear of the nasal cavities* (high and very high reg.) *through that internal passage provided by the naso-pharynx* (middle reg.).

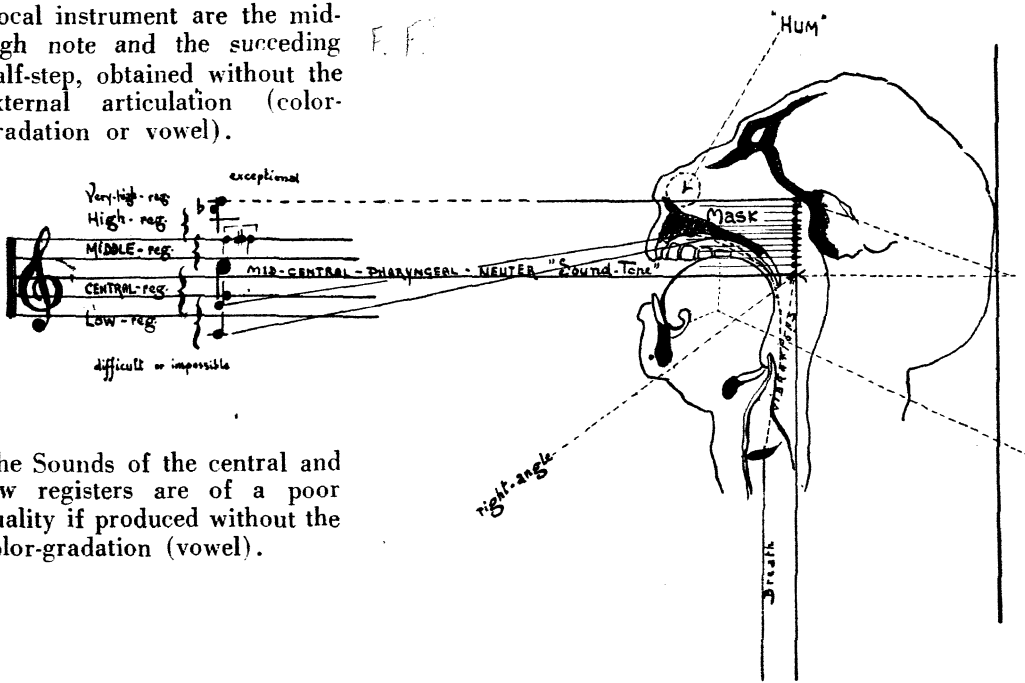
Among the many imperfections caused by "wrong formation" there is the one actually resulting from lack of space, in which case, the bell of the instrument is moved according to pitch instead of according to color. Thus we find that not a few acquire the bad habit of opening the mouth wide for the high and very high registers, and of keeping it almost shut at the low.

One cannot help but ask himself in astonishment, why the said exhibitionists do not realize that this is not only esthetically horrible but that the resulting disproportion in quality from very low to very high sounds is such that only the musically deaf would not notice it. In fact, because of this method (name given in singing to the most absurd things) the high sounds are always false and almost always oblique, the low notes, instead, are throaty and almost aphonous. In brief, the voice will sound more or less homogeneous only at two registers, the central and the middle, hardly sufficient basis this for claiming one can sing (see Fig. 6).

From a careful study of the Table of Registered Sounds two things emerge: first that the resonating chamber of the vocal instrument should still be called *Mask* as it has been professionally

TABLE OF REGISTERED SOUNDS

The best Sound-Tones of the Vocal instrument are the mid-high note and the succeding half-step, obtained without the external articulation (color-gradation or vowel).



The Sounds of the central and low registers are of a poor quality if produced without the color-gradation (vowel).

Hollow-Sound-Tones if the in*trinsic* (facial or external) muscles for the color-gradation are not used.

Exclusive portion of the tongue *that must be used for* the correct articulation of all the consonants that are not labial or dentilabial.

called thus far consciously or not, and second, that the voice can be broadly divided into two categories; the *palatal* and the *pharyngeal.*

Palatal resonance

For the lower half of the vocal compass (central and low registers) singing is more intimately related to whisper than to speach. Whispering is aphonous not because the so-called laryngic sounds are missing but because the vocal cords are not set to vibrate.

In whispering the breath is allowed to travel freely up to the hard palate and to the lips, consequently the better the use of the mandible and the facial muscles the more audible will become the whisper.

Sound-Tone and "breathed whisper" shoud be "formed" at the very same place and in exactly the same manner.

The exclusively palatal sounds are of a poor quality and they need the help of the external articulation (zygomatic and labial muscles and, especially, the corners of the mouth) in order to be properly introduced and agreeably received by the ear.

Those who sing with the naso-pharynx shut are actually using the portion of the vocal instrument that is acoustically the poorest.

Pharyngeal reasonance

Though it is fully explained in Sound-Tone and Middle Register it remains to say that this resonance should be looked for whenever possible (even two or three half-steps below the mid-central note) as it improves the *attack* and the *intonation* and facilitates the *sustaining* of the Sound-Tone.

When the pharyngeal sound rises too far it becomes *sphenoidal.*

The eunuchoid *High C,* falsetto or yodle, of the french tenors (which has lost the palatal resonance) and the famous *Do di petto* of the italian tenors (resulting from extreme tenseness) should, for the moment at least, be considered individual peculiarities rather than the result of good study.

POINTS TO KNOW

1) In all exercises the gradations *i* and *u* must be used as far as the first half of the high register, but no further.
2) In order to obtain better results, that is, greater assurance in each gradation it will be best to study all the exercises of the different registers with a single gradation at a time, rather than to study each exercise, as it is written, with five or seven gradations.
3) When beginning an exercise or a phrase, thought should always be given to the highest note to be reached, and the opening of the mouth (distance between lower and upper incisors) required for that note should be used at the start.

If a single correct opening of the mouth is not used, there would be no point in speaking of shadings, portamento, register and even timbre.

N. B. When there is the guidance of a teacher, the responsibility will be his. If, instead, the student works alone he should use large mirrors, set in much light and at a certain distance and fixed in such a way that as he sings the sound will not be directed against any of them, since in this case it would bound back again altered in timbre and thus give him a false idea of his own voice.

When, through the ever necessary practise, one will have

attained the succession of the ascending and descending steps of the scale, diatonic and chromatic, harmonic and melodic, from the low note to the high registers, as indicated in each exercise, equal in color and in intensity, the study of the consonants may be begun.

MIDDLE REGISTER

The proper formation and the comprehension of sound refraction or dispersal (within the resonating chamber) that consequently follows must be sought and obtained in this register, since it is the only one that contains the exclusively pharyngeal sound.

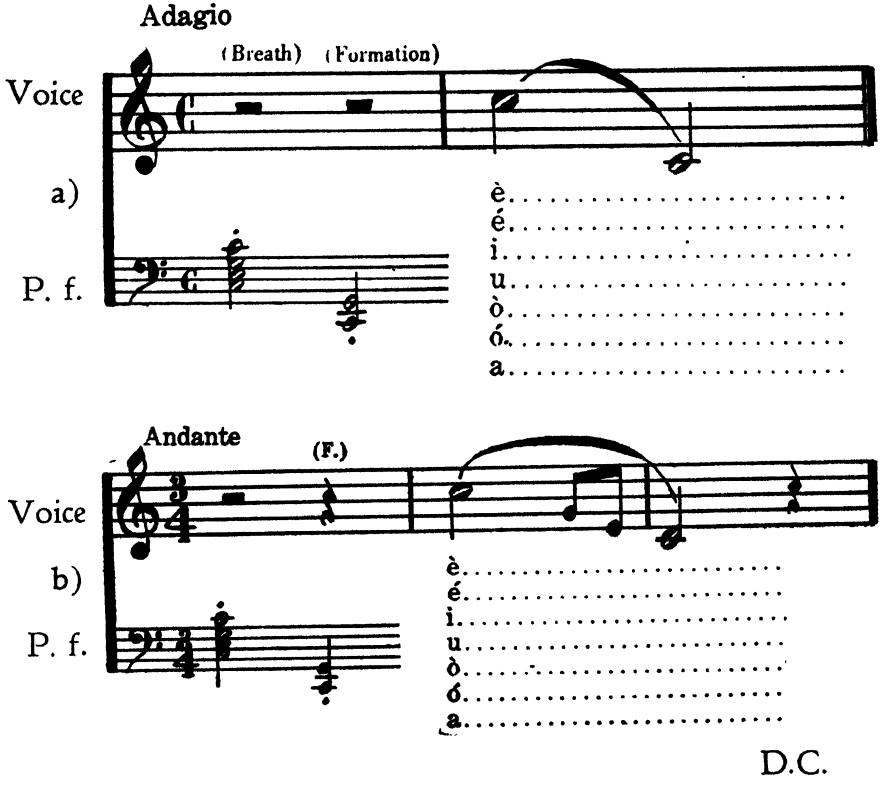
He who is not accustomed to treat with lightness what should really be considered instead a matter of life and death, will strive to avoid the very serious error, all too common outside of Italy, resulting from the misjudgment of timbre which, as we have seen, may be altered or disguised by quality.

We have also noted that sound is obtained or formed when the vibrations, rising almost vertically, meet the nearest bony point. In the vocal instrument the shortest distance is between the larynx (vocal cords) and the bony septum of the naso-pharynx (vomer). The natural thrust given to the breath by the muscles of the respiratory apparatus, without relieving the diaphragm yet, obtains from the vocal cords the number of vibrations[1] sufficient to complete this distance. If the thrust is diminished it is necessary to lead or carry the vibrations, also diminished in number, to the hard palate (central and low registers). By raising the voice, instead, — greater thrust of the breath — by half-steps, that is, in the same middle register, it is easy to find that the Sound-Tone, as it gradually

[1] The thrust of the breath can be reduced to the point where the vibrations do not reach the resonating chamber of the instrument; and the crackling noise thus made by the vibrating vocal cords, can even be relatively loud.

crosses the naso-pharynx, loses momentarily the unique characteristic of the mid-central note, but only to acquire a more beautiful quality when at the mid-high sound and especially at the following half-step (as much discussed as they are misunderstood) the pharyngeal resonance will be enriched by the sphenoidal resonance — rear of the nasal cavities. The palatal resonance is also present but is not felt unless the external articulation (color gradation) is used.

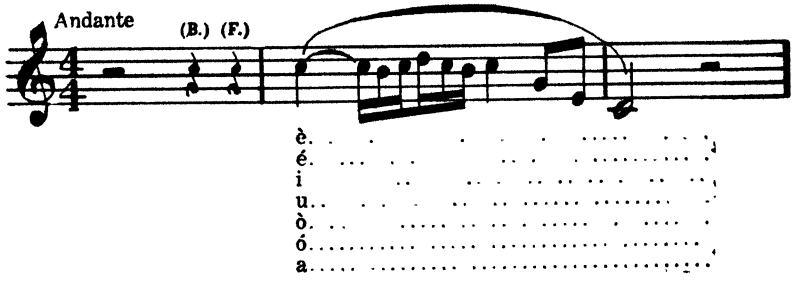
Exercise n. 1.



Half-step higher until the exercise is started at the mid-high note or not much further.

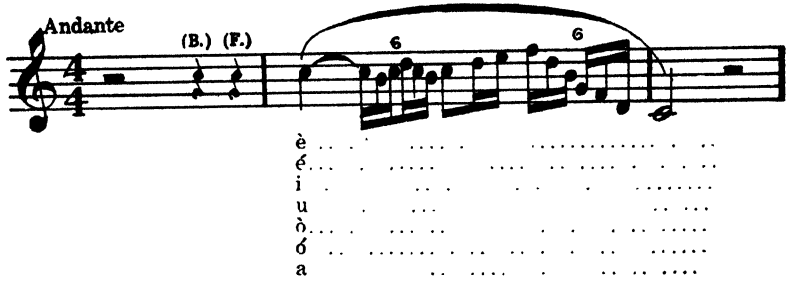
Exercise n. 2.

a)



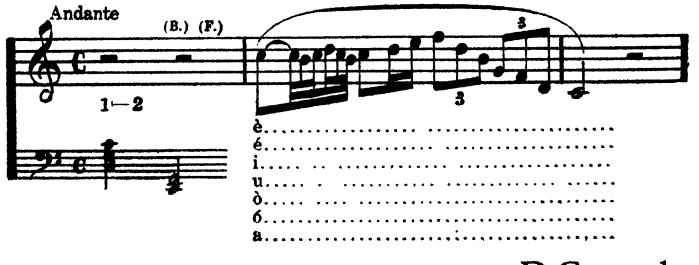
D.C. as above

b)



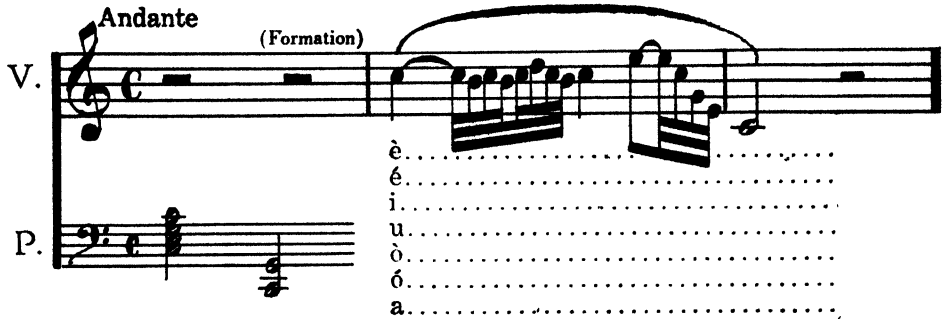
D.C. as above

Voice
c)
P. f.



D.C. as above

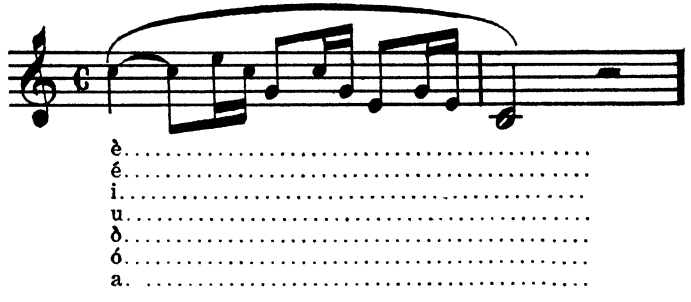
Exercise n. 3.



D. C. as above

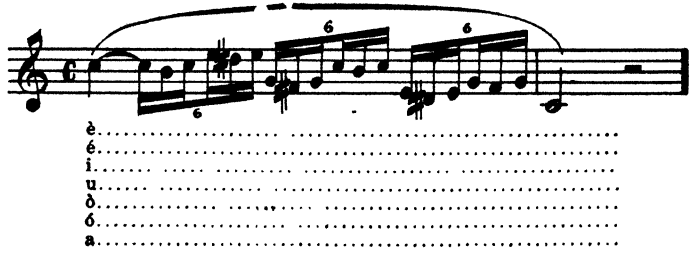
Exercise n. 4.

a)



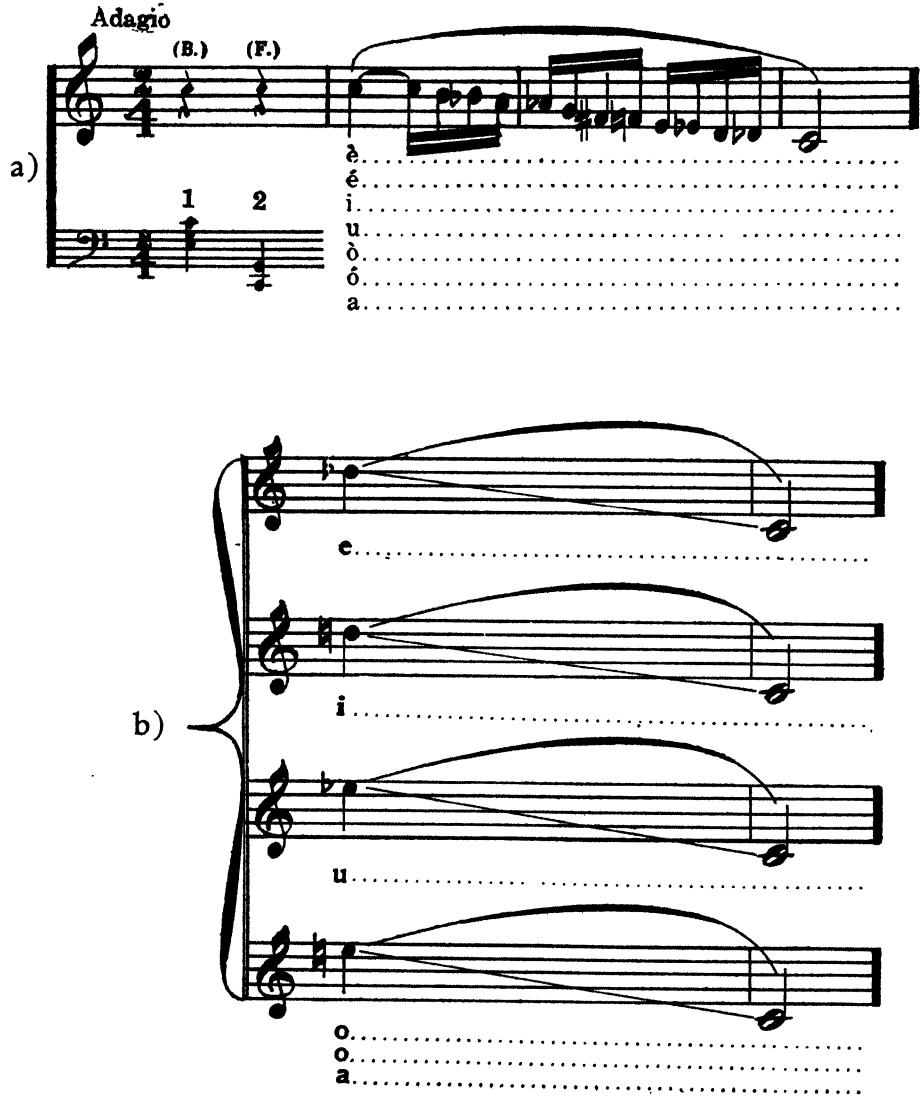
D.C. as above

b)



D.C. as above

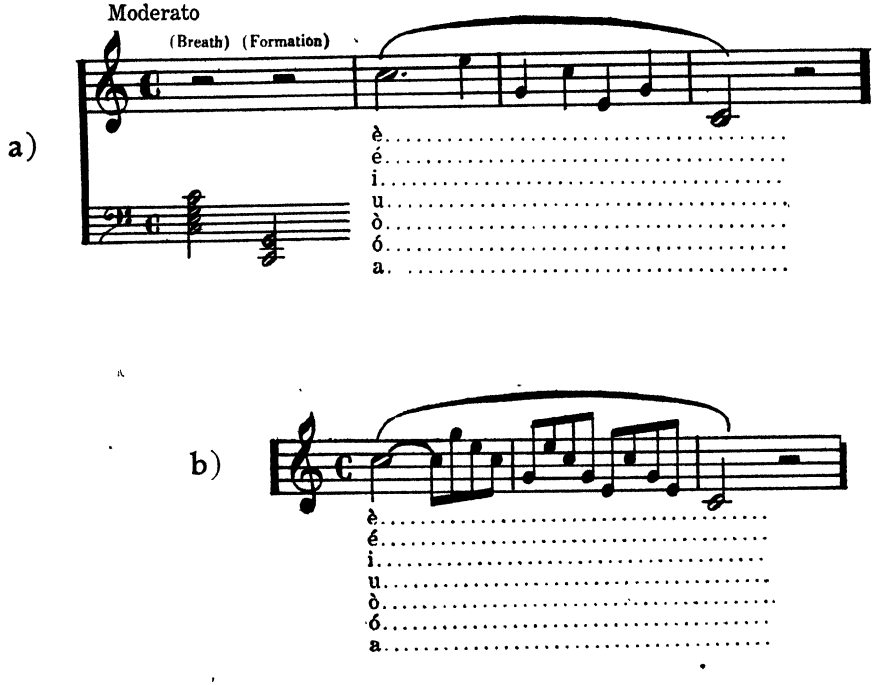
Exercise n. 5.



etc.

Exercise n. 6.

Tempo: first Adagio, then Andante, Allegro etc.

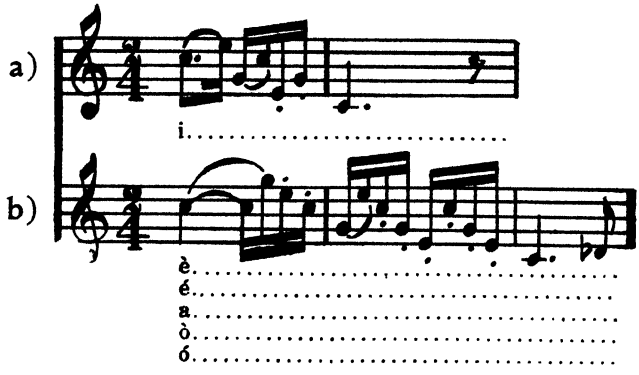


D.C. as above

N. B. Before attempting the *Staccato*, refer again to the Attack.

Try these exercises all *staccato* or all *legato* and also *legato-staccato* as follows:

Exercise n. 7.



D.C. as above

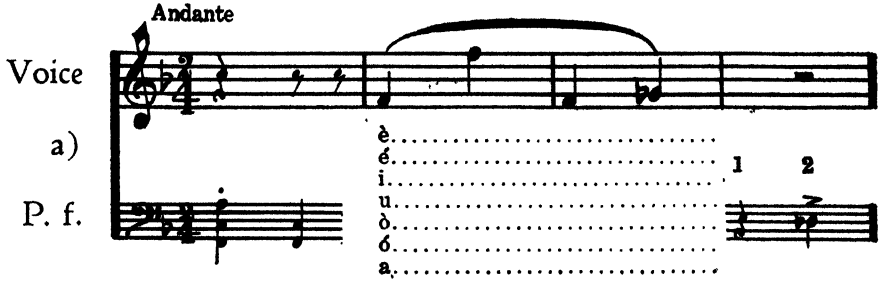
CENTRAL REGISTER

From the mid-central note downwards, the thrust of the breath decreases and the vibrations no longer reach the naso-pharynx. It will be necessary, therefore, to lead or carry them all to the hard palate (a little behind the incisors), quite an easy task this if the mandible and the hind part of the tongue are well controlled by the sub-labials (see Table of Registered Sounds).

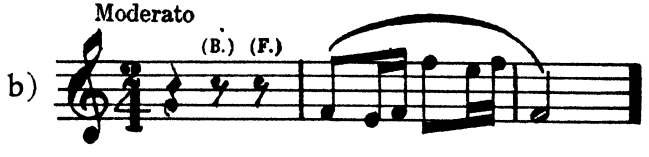
In order to carry (portare) the sound-tone from this register to the acute or high (a change of the sound's position) without interrupting or breaking it and without, of course, moving the bell of the instrument, the sound must pass through that tunnel which is the naso-pharynx. If, in addition to the register, the color gradation (vowel) is changed with the correct shading (moving of the bell and of the zygomatics etc.) the *portamento* will become truly artistic.

For the moment, however, it is more important to learn how to sustain the sound-tone of a single gradation of color.

Exercise n. 1.

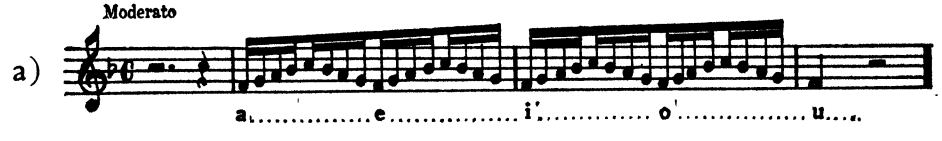


D.C. ½ step higher.



D.C. as above

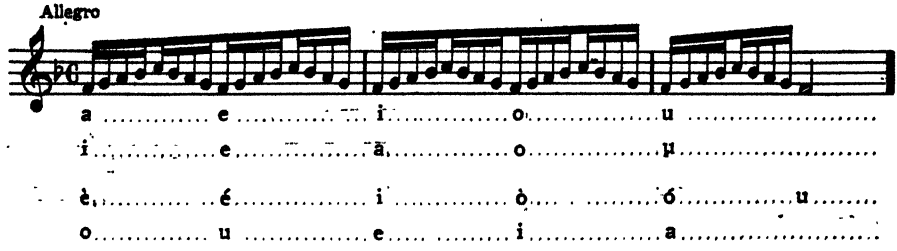
Exercise n. 2.



D.C. as above.

If it is so desired, the gradations may be inverted and alternated. The voice should be raised by half-steps until the exercise is started from the mid-central note. If no forcing is necessary and no clogginess in the oral passage is felt the purpose of the exercise is achieved and it can be continued for two or three half-steps higher.

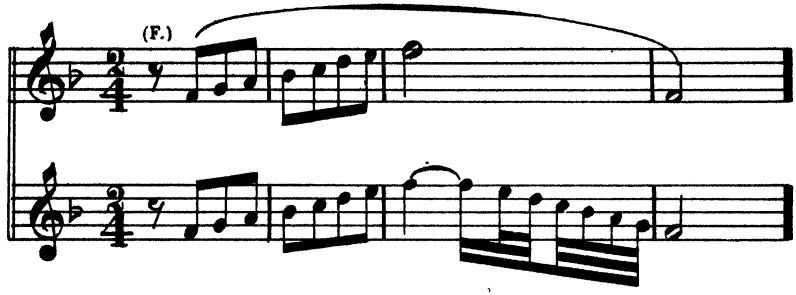
b)



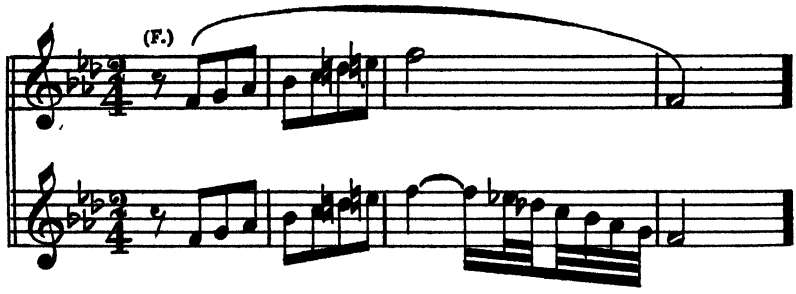
Exercise n. 3.

SCALES

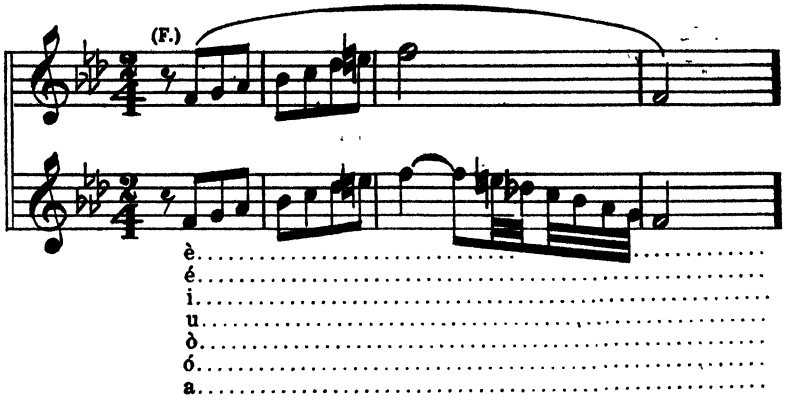
Diatonic



Melodic

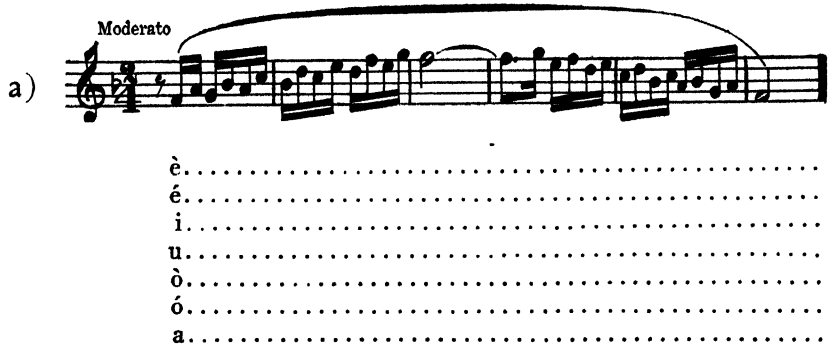


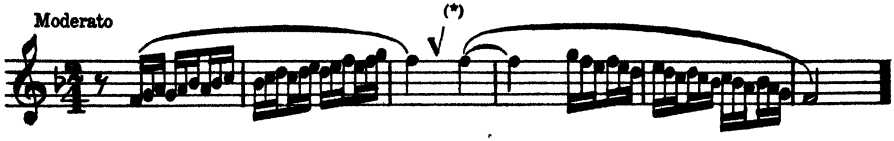
Harmonic



In order to better train the student's ear, but after the usual proceeding by half-steps has been mastered, it is advisable to do the same exercise passing from one tonality (key) to another, be it relative, related or remote. The same scale, for example, should be tried first in the diatonic, then in the melodic and in the harmonic modes. Continuous change is a musical and psychological necessity in the study of singing.

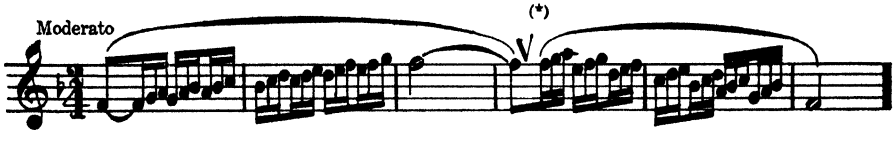
Exercise n. 4.





è.....
é.....
i.....
u.....
ò.....
ó.....
a.....

(*) Stop the sound by stopping the breath, that is, continue with the reserve accumulated at the beginning.



è.....
é.....
i.....
u.....
ò.....
ó.....
a.....

LOW REGISTER

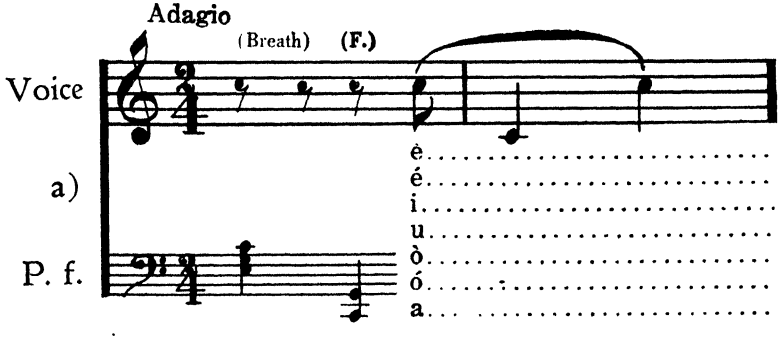
The notes of this register are as important as those of the high, the middle and central registers. In fact, in certain cases, the lowest sound is as effective as the highest one. If the "Attack" and the middle register have been intelligently studied, that is to say, if the proper internal formation has been obtained, I am sure that even here there will be no difficulty. It remains, however, to be

said that the need for the control of the sub-labial muscles becomes more than ever evident in this register.

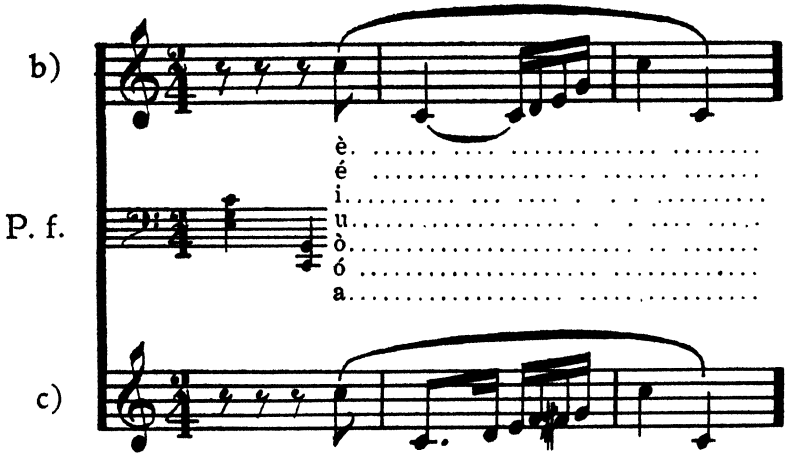
The low sounds require great facility or rather mastery in the use of the facial muscles, because if the fully open bell of the instrument is not correctly surrounded these sounds may very easily become grotesque. They should never be felt in the back of the oral cavity.

Lower the jaw fully, that is, open the mouth in an oval manner; control the hind portion of the tongue by pulling with the sub-labial muscles; relax completely the upper part of the face until the sound is actually felt attached to the hard palate (see the point indicated on "Table of Reg. Sounds").

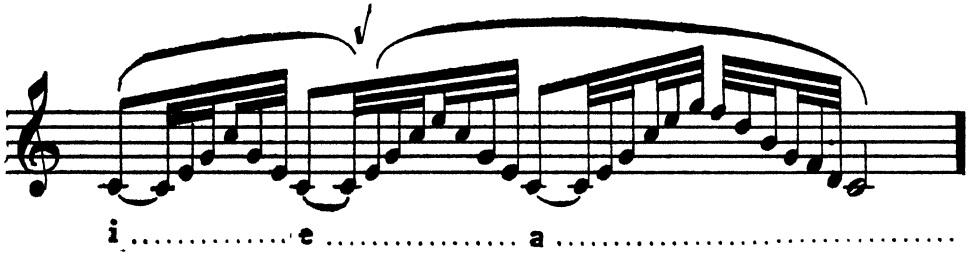
Exercise n. 1.



D. C. ½ step higher



Exercise n. 2.

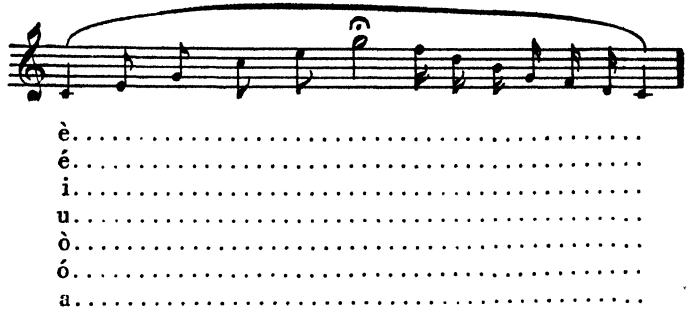


This exercise, in the form of a "Cadenza" must be practised well with the three gradations given above.

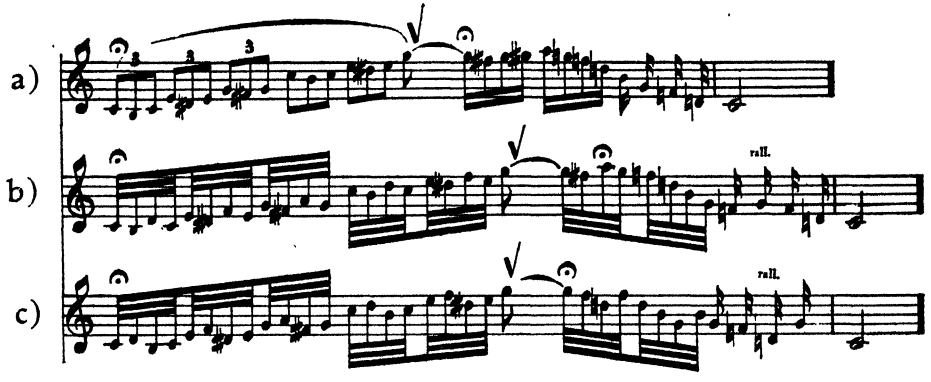
Study it first with one breath.

Proceeding upwards by half-steps the exercises n. 2 and n. 3 will familiarize the student with the very-high notes.

Exercise n. 3.



Music, by virtue of its passing notes, lends itself to a large number of variants as, for example, the following exercises which derive from the one above.

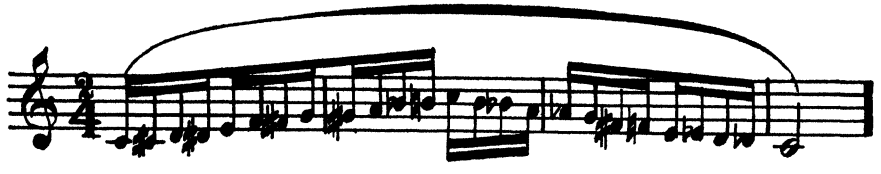


To be practised 1) with a single color-gradation and taking breath — *without changing the formation of the whole instrument internally and externally* — as indicated (√). 2) with a single breath; 3) with several gradations, in the accented or unaccented notes; 4) all the above said plus the addition of syllables for the last two, three or four notes, etc. The study of the combinations 3 and 4, however, is far too advanced and should be disregarded for the moment.

Exercise n. 2 of the central register should now be restudied beginning from the lowest note of the voice.

Exercise n. 4.

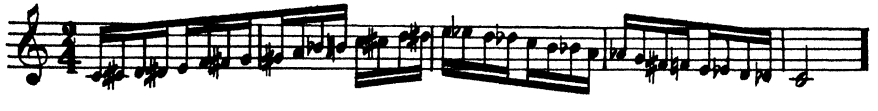
a)



è.....
é.....
i.....
u.....

D. C. ½ step hig.

b)



ò.....
ó.....

D. C. as above

Clearness or neatness in the performance of the scales depends exclusively on the correct formation and the absolute immobility (internal and external) of the instrument.

c)

a.....

D. C. as above

HIGH REGISTER

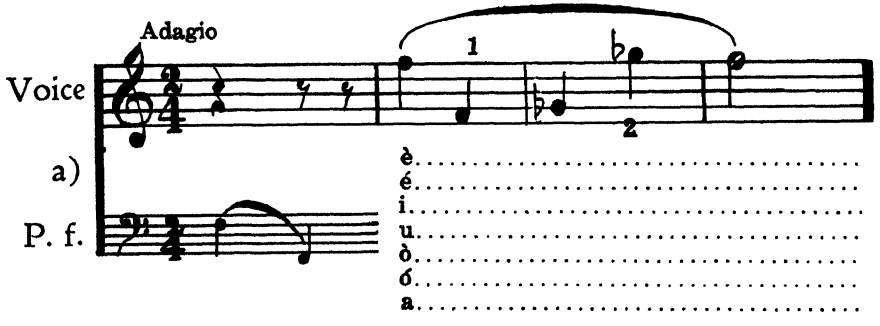
This register is very beautiful and of enormous musical importance, because the grades or steps it comprises belong to that zone which must be reached when the phrase can no longer be contained within the bounds of scolastic pedantism. It is also easy to understand if the naso-pharynx has remained completely open in the preceding (middle) register. Otherwise, the stumbling blocks that will be encountered are numberless. If the pharyngeal resonance is missing the sound remains in the oral cavity — at the risk of becoming oblique, that is, directed toward anyone of the cardinal points due to the irregular, false and unesthetical movements of the whole labial muscle — soft, obtuse and without possibility of improvement. If it is made to pass through the nasal cavities, it will become exclusively nasal and, therefore, quite ridiculous even if singing in French is intended If, instead, it is held inside, it will not even attain the effect of that famous "falsetto" (false sound) that has long since ceased to be fashionable.

The reason for all these imperfections is the same disregard for the fundamental acoustic principle of the sound of which we have spoken at the start of this treatise. Thus, if the back part of the tongue is not high and rigid, the breath, now transformed into vibrations, fails to find an exit and, consequently, it forces its way wherever and however it can. That appendix of the hard palate. the soft palate, which is a muscle, cannot relax and remain pendulous at the interior of the pharynx like an architectural trimming because it is prevented in doing so by the tongue; it will stay up high and, in order to make room for the vibrations, will recede backwards until it completely closes the naso-pharynx, as is done in the act of swallowing. Result: an opaque, throaty yell or cry which in the majority of cases is "sharp" because of the too great thrust of the breath (which brings internal contractions, etc.) and

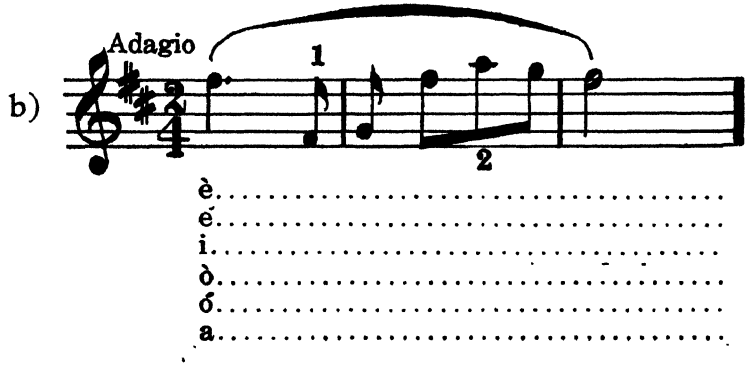
which may be considered more as belonging to the family of gargles than that of sounds.

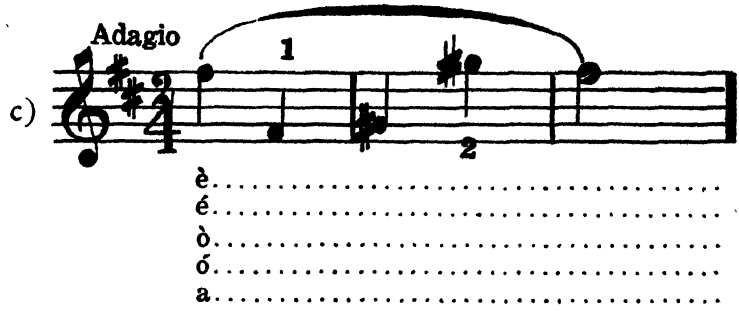
As already said, difficulties will be avoided in singing only if the point of departure has been definitely found.

Exercise n. 1.



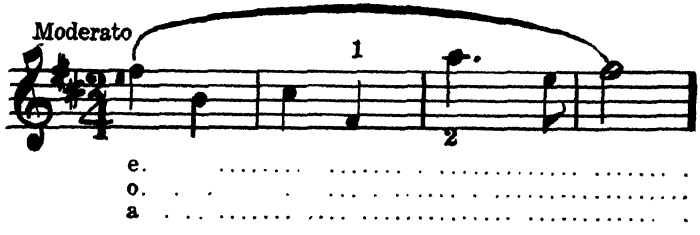
Descend to the lowest note of the instrument (1).
In ascending reach the highest (2).





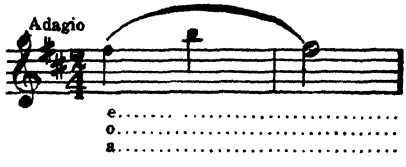
Descend to the lowest note of the instrument (1).
In ascending reach the highest (2).

Exercise n. 2.



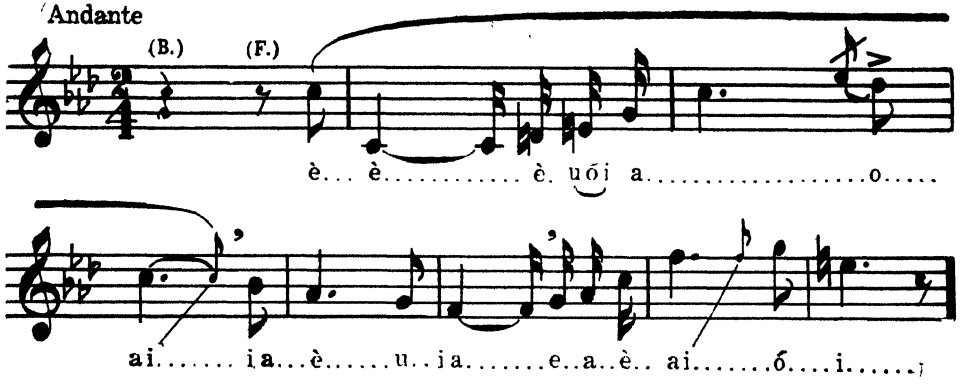
D.C. half-step lower.

Exercise n. 3.



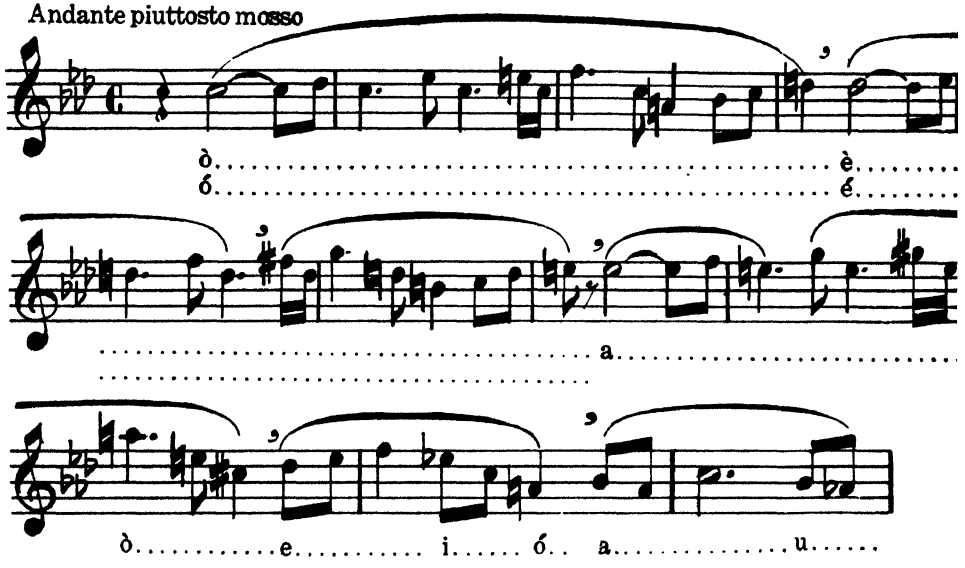
N. B. If absolute immobility of the instrument is not mantained the *legato* will be impossible.

An example of phrasing with alternate gradations and concatenation of registers:



This exercise which may even seem ridiculous because it lacks the consonants, serves to show the continuity of sound in the alternation of color.

A phrase in *progression* on three registers.



VERY HIGH REGISTER

It is ordinarily said that the intensive development of the very high notes damages the low register. The maxim, however, is not exact, and it is the natural consequence of the exaggeration and the abuse of those who, lacking the responsability that in general comes from a true comprehension of the facts, believe they can boast a display of super-high notes, or the attainement of the unattainable.

It is more likely that, by practising high sounds (which in some cases are easier to perform than the others) too long, the singer forgets that the compass of the voice is of two octaves. Thus, he does not learn how to use his own vocal instrument in both the low and central registers. He who has studied properly will not even dream of crossing that border where singing ends and yelling begins.

In every voice the highest note, that is, the last accessible one, is always of poor quality and of very questionable timbre because the sound has already passed beyond the resonating chamber of the instrument. Consider as *limit* of the compass the half-step or even the whole-step preceding that last note.

The sounds of this register always require preparation.

The *arpeggios* are, therefore, the best exercises (see low reg. n. 2 and 3).

THREE MUSTS

1st. *Breathing through the nose, or nose and mouth simultaneously.*
2nd. *Control of the mandible.*
3rd. *Development of the zygomatic muscles.*

THREE DON'TS

1) Never exercise the voice with the mouth closed (unless correct *hum* is practised) because it leads to the most complete incomprehension of singing.
2) *Do not insist in recognizing the sound* before having obtained at least a scale, from the low-central to the mid-high notes, homogeneous in color and uniform in quality, that is, observing absolute immobility of the whole instrument: internally — throat and oral cavity; externally — zygomatic muscles, upper lip and corners of the mouth.
3) Do not lose sight of the position of sounds, that is, do not insist in wanting the sound localized somewhere in the back of the oral cavity. The position of the sound, in order to be correct, must vary continuously, not only from one register to another but from one whole-step or even a half-step to the other.
Concentrate all attention, instead, *on the naturalness of the lowering and raising* of *the mandible and on the elasticity of the upper labial and the corners of the mouth, on which all correct singing mostly depends.*

CONSONANTS

Language is one of the most chiseled and most dominant as well as one of the most fundamentally characteristic of human faculties.

W. Dwight Whitney

Have students of voice ever given much thought to this? Why then is it so often difficult to understand even in what language the singer is trying to express himself?

The mania for polyglottism is more common among those who have studied badly, which is only natural, since they are the ones who do not realize the nature and the extent of the responsability that correct singing entails.

If one devotes himself to folkloristic singing he may do very much as he pleases. If, instead, one's goal is the opera and the classics, he must abide by quite a different orthology from that of various spoken languages.

Once the vowels have been well studied, it is very likely that no difficulty will be encountered for the consonants, in as much as all that renders singing heavy and awkward will be spontaneously avoided. However, an elementary treatise like this one would not be complete without at least some clarifications regarding pronunciation or articulation which are characteristics proper to the language of singing.

This study has but one object—to *obtain the utmost continuity of sound on each word.* If the vowels can become sonorous and the consonants cannot, it will be necessary to subordinate the latter to the former.

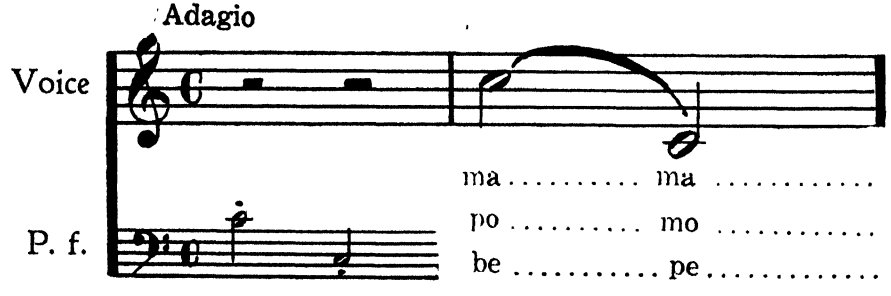
The acrobatics required of that very important organ or process of the floor of the mouth called "tongue" in pronouncing the French *r* or the English *l*, for example, renders the sound, as everyone knows, opaque and musically ugly. Furthermore the exaggeration deriving from imitation is actually intolerable.

1

b,
m, } labials
p,

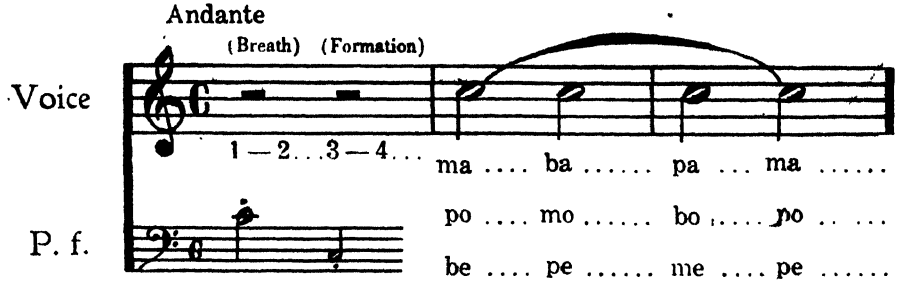
The movement of the lips must be quick and light like that of the eyelids (occurring almost inadvertedly). The consonant is just barely pronounced, but the vowel which is more important, remains constant.

Exercise A.

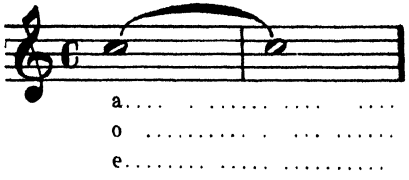


The consonants and vowels may be alternated at will.

Exercise B.

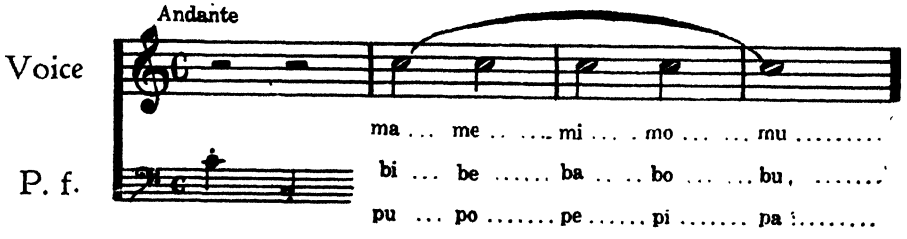


Consider the vowel as if it were written:



Proceed by half-steps up to the mid-high sound.

Exercise C.



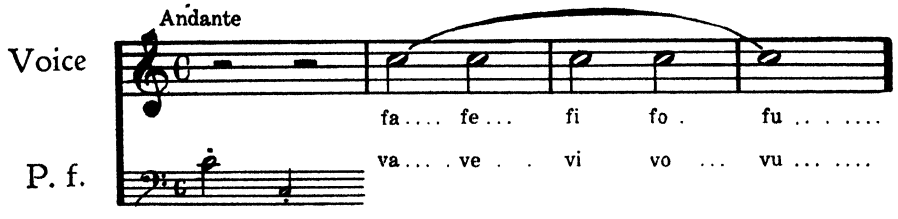
N. B. Observe the continuity of sound and keep the *u* very light.

2

f,
v, } labiodentals

For these consonants the mandible will have to move rapidly and lightly.

Exercise A.



(etc. as above)

Alternate vowels and consonants at will.

As the performance becomes gradually lighter and easier the tempo can be accelerated to *Vivace.*

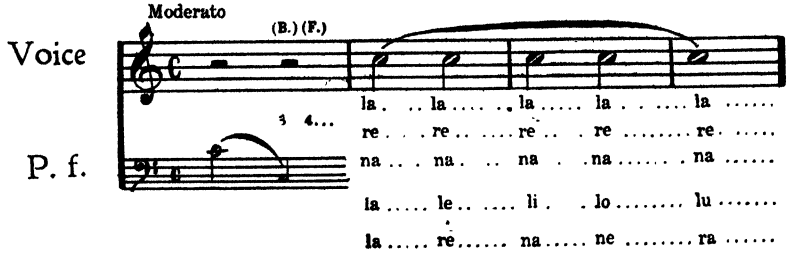
3

l,
n,
r, } linguopalatals (tongue-palate)

[*l* and *r* are closely related both acoustically and ethymologically.]

Touch the palate with the tip of the tongue. (It would not be possible to do otherwise, even if one so wished, since the rigid position must be maintained for the vowel).

Exercise A.

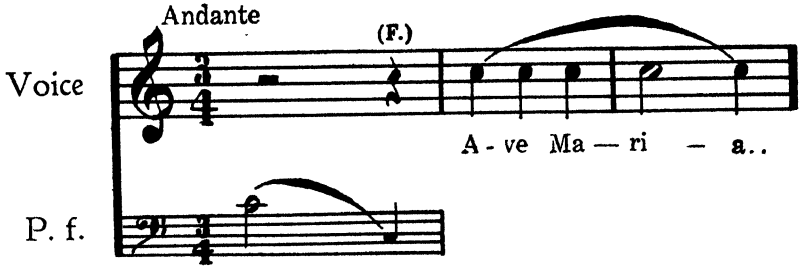


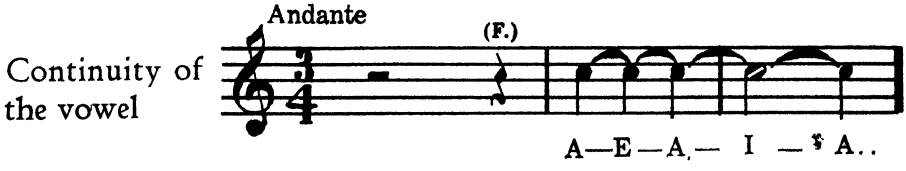
(etc. as above)

Alternate consonants and vowels.

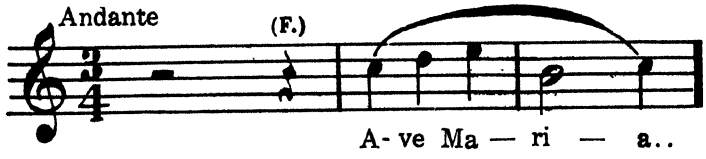
If the three classes of consonants explained thus far have been studied carefully, a phrase like the following should not prove difficult.

Exercise B.





and again:

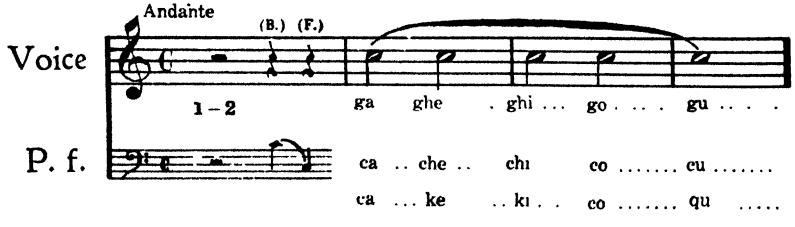


4

g, j, k, c, q,	is not Italian (") English k	become linguopalatal

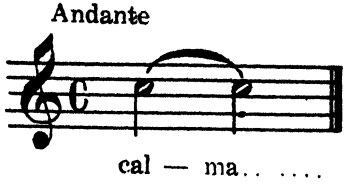
Without moving the tip of the tongue from its normal position — that is, touching the mandibular incisors, — let that part between the tip and the highest point of the tongue visible from the outside adhere to the palate.

Exercise A

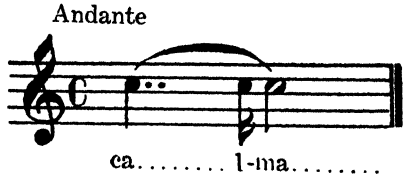


Try:

Exercise B.



For the correct rendition as if it were written:



N. B. It will be impossible to understand the difference between the guttural and the linguopalatal consonants if the sub-labial muscles have not yet been sufficiently developed.

5

c, in Italian = ch, in English	dentilingual
z,	
d,	
t,	

These are the easiest because they are common to several languages.

The *d* will result easier and clearer if it is articulated like the *l* (linguopalatal).

th, English
c, Spanish } dentilingual

Use the consonants of this number with Exercise A of n. 4.

6

s, hard; dental-sibilant

s, sweet; pronounced almost like
z, sweet

7

Digraphs

gl, Italian
ll, Spanish

gn, Italian
ñ, Spanish
sc, Italian
sh, English
} linguo-palatal

ch, Italian
k, English

Study these digraphs by connecting them to vowels
(gli), (gne) in Italian
(lle), (ña) in Spanish, etc.

The aim is to avoid the nasal sound characteristic of the gn (ñ).

sc, (sh) should be obtained by touching the hard palate with the tip of the tongue.

gl, ll, gn, ñ, should be obtained, instead, by keeping the anterior extremity of the tongue firm and in contact with the mandibular teeth.

A great deal of attention and practise is necessary to obtain the rapid passage of the consonant within the same vowel (rigid formation) and between the different vowels (elastic formation).

8

w, in English = u, in Italian*
y, in (") = uai, in Italian (triphthong)
y, in Spanish = i, in Italian

Acoustically they must be considered vowels.

x, English and Spanish; a combination of c, s.

9

h, (aspirate) is not Italian

h, English
j, Spanish } guttural in origin

I have left this consonant for the end because it deserves special consideration.

It must be obtained exclusively with the breath and it is as fundamental and explicative in singing as it is difficult for him who does not use it spontaneously.

If the formation is correct the breath will pass lightly between

*This is the sound represented by the letter. Not the name of the consonant.

the tongue and the soft palate and reach the hard palate, almost behind the incisors where it will break and be changed into sound and vowel.

I do not believe it can be understood if not practically demonstrated by one who possesses the natural formation. Nevertheless it should be tried with the mid-central sound and also one or two half-steps above and below.

The concurrent and concomitant elements conducive to the *ART* of singing are now complete.

1st. Larynx, naso-pharynx, hard palate and nasal cavities, properly "formed", constitute the musical instrument of which the mouth, correctly opened, is the bell. From this complex results only the Sound-Tone.

2nd. The labial muscle, with its fleshy covering, is the sphincter which makes the gradations and the shadings.

3rd. *The tip and-or the anterior portion of the tongue, the labial muscle and the mandible, in alternate combinations, are responsible for the correct articulation of the consonants.*

THE "HUM"

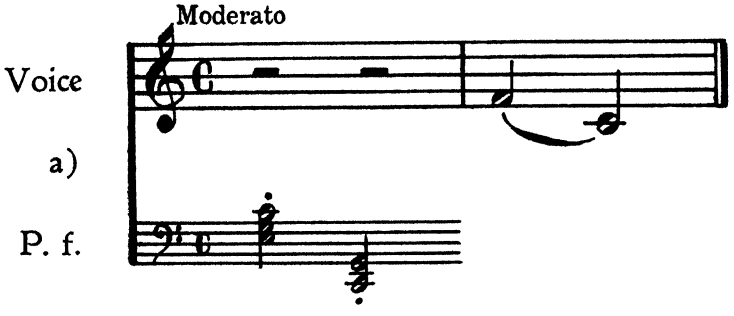
SINGING WITH THE MOUTH CLOSED.

In the study of formation, which is as difficult as it is fundamental, the *hum* — *Canto* a bocca chiusa, or, *singing* with the mouth closed — may, sometimes, hold in store revealing surprises, especially when the *timbre* has been misjudged, as is so often the case.

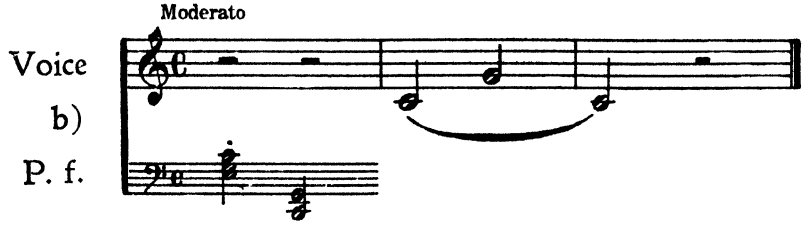
The *hum* should first be tried in the lowest notes. To be performed correctly it must result relatively loud, but very easy and light to produce. The vibrations must be felt only in the nasal cavities and in the nostrils, not further back than the mucous membranes and, above all, not in the mouth. To obtain this, the teeth must be held tightly set. The tongue must be forced to adhere to all the teeth and to the hard palate, by using the sub-labial muscles. The lips, again, must remain relaxed.

Assuming that the above explained "formation" has been obtained, the intervals of fourth, fifth and octave should be tried, in the manner that follows:

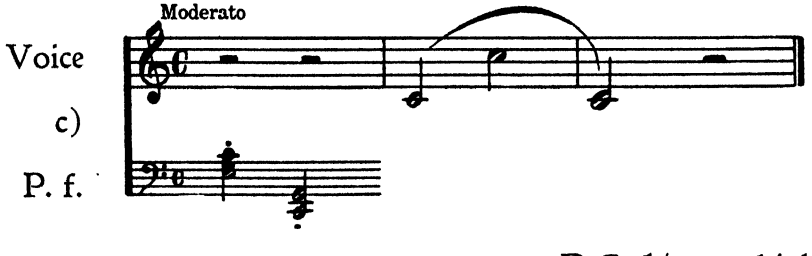
Exercise:



D.C. ½ step higher.



D.C. ½ step higher.



D.C. ½ step higher.

These intervals are preferable to the common thirds since they require more attention or concentration in the process of "musical phonation".

During these exercises it is wise to find out what the behaviour of the larynx is. This is done by lightly holding it between the thumb and the index of the right hand. The larynx should move very little and only vertically. When the voice goes up, the cricoid cartilage becomes harder, or tense and perceptibly higher. Of course, it retakes its normal position and relative tenderness as the voice comes down again. When the voice is *throaty* the phonation is neither musical nor artistic, because the larynx is sloped backwards and the vibrations are sent to the spinal cord instead of the naso-pharynx. In such cases, as has already been said, the quality is always ugly, because no matter how good the timbre may be, the true resonance of the voice is completely missing. All the defects in singing are the consequence of bad habits but the one just mentioned above is, without question, the worst.

In the correct *hum* (the name is somewhat too vague) the air as always, is made to pass through the nose, the same as for the "Attack (A)" It travels through the naso-pharynx, the larynx, the trachea and arrives at the umbilicus. When *singing with the mouth closed is intended*, the breath starts its journey from the lungs: it becomes vibration at the larynx, *becomes sound at the naso-pharynx* and is uttered through the nose rather than through the mouth.

The internal formation of the instrument remains the same and the pharyngeal character of the sound can be clearly heard when the sound arrives at the nostrils.

This is the procedure of study. The rest is entirely dependent on the vibratory properties of the vocal cords.

CONCLUSION

This book is not intended for lovers of theories, and of complicated or idle discussions. It has a sole aim — to aid those young people who in spite of their excellent probabilities of success, are obliged to grope in the dark for lack of guidance in an art which is mistakenly believed to be decadent. If the enormous technical development obtained in instrumental music is considered and then compared to the progressive deterioration that has occurred in the study of voice, it will be possible to realize just how superficial and ridiculous this opinion is.

It is the result of devoted and assiduous study, of an acute spirit of observation, of musicality and last, but by no means less important, of years of experience with subjects at times refractory to teaching. Only by correcting the errors and by proceeding by elimination does one arrive at what singing should really be.

Reducing all that has been definitely established thus far to its briefest term or to a single phrase we can say that the essentials of singing are simply: *Little breath and correct formation.*

I am convinced that if through sufficient will power the few rules contained in this elementary treatise will be scrupulously followed, it will not be difficult to attain a gradated improvement of the voice, such as even a layman can notice.